

Exploring the Possibility of Utilizing Cluster Approach to
Diversify Mining-based Economy of Mongolia

By

SANDUIJAV Tserendolgor

51213001

March 2015

Thesis submitted to the Higher Degree Committee
of Ritsumeikan Asia Pacific University
in Partial Fulfillment of the Requirements for the Degree of
Master of Science in International Cooperation Policy

Under the Supervision of Professor TSUKADA Shunso

ACKNOWLEDGEMENT

This research is not just my personal endeavor. The whole research process wouldn't be possible for me to accomplish successfully without those experienced, inspiring, and kind people who supported and encouraged me for the past two years.

First and foremost, I would like to give my sincere and deepest gratitude to my supervisor, Professor TSUKADA Shunso for his tremendous support and valuable guidance. Words can't express my appreciation for his patience, kindness, understanding and great inspiration for my work and student life in Japan. I will always keep his generous advice in mind while pursuing my future career as I highly value his professional skill and ability in the research field. I feel that I was lucky enough to receive a great amount of assistance in my thesis writing from one of the best professors.

I am very thankful to the people who helped me with data collection. With their kind help in organizing interview with experts and state officials, I managed to get to know their opinions and recommendations and complete my research work in time.

My special gratitude goes to my father, mother, brother and my entire family for their love, kindness and diligent support throughout the whole process. Your endless love and boundless energy always motivate me to learn more and explore new things. You have taught me how to move forward with confidence and do my best when I face difficulty. Thank you for your belief in me.

Last but not the least, I would like to express my appreciation to my seminar class fellows and friends especially Saroj KAFLE for their encouragement, advice, and love. I enjoyed every single moment of my seminar class and learnt many things from your wonderful experience and endless knowledge.

SANDUIJAV Tserendolgor

PLEDGE

I, Sanduijav Tserendolgor, hereby pledge and certify that my thesis, entitled “Exploring the Possibility of Utilizing Cluster Approach to Diversify Mining-based Economy of Mongolia” is my own work with supervision of Professor TSUKADA Shunso. All parts of my thesis are written solely by me except those that are referenced and acknowledged.

There is no plagiarism in my thesis and any parts have not been published elsewhere or submitted to other universities.

| | | |
|------------------------|-----------|-------|
| SANDUIJAV Tserendolgor | | |
| (ID 51213001) | Signature | Date |

Certified by:

| | | |
|----------------------|-----------|-------|
| Prof. TSUKADA Shunso | | |
| (Supervisor) | Signature | Date |

Table of Contents

| | |
|---|-----|
| ACKNOWLEDGEMENT | i |
| PLEDGE | iii |
| Table of Contents | iv |
| List of Tables | ix |
| List of Figures | x |
| List of Acronyms and Abbreviations | xii |
| ABSTRACT | xiv |
| CHAPTER ONE | 1 |
| 1. INTRODUCTION | 1 |
| <i>1.1 Background of the Study</i> | 1 |
| <i>1.2 Research Questions</i> | 5 |
| <i>1.3 Research Objectives</i> | 5 |
| <i>1.4 Significance of the Study</i> | 6 |
| <i>1.5 Research Methodology</i> | 8 |
| <i>1.5.1 Research Strategy</i> | 8 |

| | |
|--|-----------|
| 1.5.2 Research Design..... | 8 |
| 1.5.3 Population and Sampling Techniques..... | 9 |
| 1.5.4 Data Collection Methods | 10 |
| 1.5.5 Data Analysis..... | 13 |
| 1.5.6 Limitation of the Study..... | 13 |
| 1.6 Organization of the Study..... | 14 |
| CHAPTER TWO | 16 |
| 2. LITERATURE REVIEW | 16 |
| 2.1 The Concept of Cluster | 16 |
| 2.2 How Clusters Develop..... | 24 |
| 2.3 Government Role for cluster-based economic policies..... | 27 |
| 2.4 Clusters are critical to raising competition | 30 |
| 2.5 Types of Clusters | 31 |
| 2.5.1 Export-oriented Cluster | 36 |
| 2.6 Clusters vs. Value Chains | 38 |
| CHAPTER THREE | 40 |

| | |
|--|-----------|
| 3. SITUATION IN MONGOLIA..... | 40 |
| <i>3.1 General Description of Mongolia.....</i> | <i>40</i> |
| <i>3.2 Mongolia and Mining Sector</i> | <i>42</i> |
| <i>3.3 Current Economic Situation (Mining boom going towards the bust)</i> | <i>50</i> |
| <i>3.3.1 All main indicators are going downward</i> | <i>50</i> |
| <i>3.3.2 Symptoms of Dutch Disease are evident</i> | <i>59</i> |
| <i>3.3.3 Other issues arising from overdependence on mining</i> | <i>61</i> |
| <i>3.4 Current cluster development of Mongolia</i> | <i>64</i> |
| CHAPTER FOUR..... | 71 |
| 4. ANALYSIS OF INTERVIEW FINDINGS AND PRESENTATION OF RESULTS..... | 71 |
| <i>4.1 Introduction.....</i> | <i>71</i> |
| <i>4.2 Interview</i> | <i>71</i> |
| <i>4.2.1 Interview Results and Findings.....</i> | <i>72</i> |
| CHAPTER FIVE | 87 |
| 5. CASE STUDY ON CHILE`S WINE CLUSTER..... | 87 |

| | |
|--|------------|
| 5.1 Introduction..... | 87 |
| 5.2 Why was Chile chosen for case study?..... | 87 |
| 5.3 Brief History in Wine Making | 92 |
| 5.4 Cluster Approach for the Development of Chile`s Wine Industry | 93 |
| 5.4.1 Production and Exports | 105 |
| CHAPTER SIX | 109 |
| 6. STRATEGIC IMPORTANCE OF CASHMERE FOR CLUSTER DEVELOPMENT | 109 |
| 6.1 Introduction..... | 109 |
| 6.2 Mongolian Cashmere Industry | 109 |
| 6.2.1 Current Drawbacks behind Cashmere Industry..... | 113 |
| 6.3 Why can cashmere industry be more potential and appropriate for export-led cluster development than others? | 116 |
| 6.4 Benefits of prospective Export-oriented Cashmere Cluster | 123 |
| 6.5 Comparative study on Italian Loro Piana | 125 |
| 6.5.1 Profit increase by tapping the resource of Mongolia..... | 125 |

| | |
|---|------------|
| 6.6 Strategic Location for Cashmere Cluster | 129 |
| CHAPTER SEVEN..... | 134 |
| 7. DISCUSSION OF FINDINGS | 134 |
| 7.1 Introduction..... | 134 |
| 7.2 Discussion of the Research Findings | 134 |
| 7.2.1 How can Mongolia diversify its economy from mining sector through cluster approach? And what could be more promising and potential sector to facilitate diversification?..... | 135 |
| 7.2.2 How can Mongolia overcome the challenges of establishing clusters? | 138 |
| CHAPTER EIGHT | 142 |
| CONCLUSION AND POLICY RECOMMENDATIONS | 142 |
| 8.1 Conclusion..... | 142 |
| 8.2 Policy Recommendations | 144 |
| REFERENCES..... | 148 |
| APPENDICES | 161 |

LIST OF TABLES

Table 3.1 *Strategically significant mineral deposits*

Table 3.2 *Main economic indicators of Mongolia*

Table 5.1 *Area Planted, Wine Production, and Exports of Chile*

Table 6.1 *Production, Capacity, and Capacity Utilization in the value-added chain*

Table 6.2 *Top 5 provinces with most goats*

LIST OF FIGURES

Figure 2.1 *California Wine Cluster*

Figure 2.2 *Cluster Development Flowchart*

Figure 2.3 *Marshallian Industrial District*

Figure 2.4 *Hub-and-Spoke District*

Figure 2.5 *Satellite Platform Cluster*

Figure 2.6 *State centered cluster*

Figure 2.7 *Level-based Cluster Type*

Figure 3.1 *Map of Mongolia*

Figure 3.2 *FDI at current US Dollar*

Figure 3.3 *FDI as percentage of GDP*

Figure 3.4 *Supply-side Contributions to Growth*

Figure 3.5 *Demand-side Contributions to Growth*

Figure 3.6 *Monthly Inflation*

Figure 3.7 *Current Account, 2003-2013*

Figure 3.8 *Coal Export Volume (Jan 2011- Dec 2013)*

Figure 3.9 *Trade Balance (Dec 2007-Dec 2013)*

Figure 3.10 *Gross International Reserves (Dec 2008- Dec 2013)*

Figure 3.11 *Money supply and total bank lending*

Figure 3.12 *International Copper Price (Jan 2008-Jan 2014)*

Figure 3.13 *Global prices of main exports*

Figure 4.1 *Provinces of Mongolia, Administrative Divisions*

Figure 5.1 *Map of Chile*

Figure 5.2 *Location of Wine Clusters of Chile*

Figure 5.3 *Chilean Wine Cluster*

Figure 5.4 *Stakeholders in the Chilean Wine Cluster*

Figure 6.1 *Provinces of Mongolia, Administrative Divisions*

LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|----------------|---|
| ADB | Asian Development Bank |
| BOM | Bank of Mongolia |
| CIA | Central Intelligence Agency |
| CODELCO | National Copper Corporation of Chile |
| DBM | Development Bank of Mongolia |
| EMC | Erdenet Mining Corporation |
| EMP | Enterprise Mongolia Project |
| ENAMI | National Mining Corporation |
| FDI | Foreign Direct Investment |
| FTA | Free Trade Agreement |
| GDP | Gross Domestic Product |
| ILIRD | Institute for Light Industry Research and Development |
| IMF | International Monetary Fund |
| JBIC | Japan Bank for International Cooperation |
| LCDI | Local Cluster Development Initiative |
| MAR | Marshall-Arrow-Romer spillover footnote bichih |
| MDRC | Mongolian Development Research Center |

| | |
|--------------|--|
| MNT | Mongolian Tugrik |
| MOFA | Ministry of Foreign Affairs |
| MWCA | Mongolian Wool&Cashmere Association |
| NCIC | National Council on Innovation and Competitiveness |
| NDIC | National Development and Innovation Committee |
| NSO | National Statistical Office of Mongolia |
| ODA | Official Development Assistance |
| OT | Oyu Tolgoi |
| OVOP | One Village One Product |
| PPP | Public-Private Partnership |
| PPP | Purchasing Power Parity |
| TT | Tavan Tolgoi |
| UNDP | United Nations Development Program |
| USAID | United States Agency for International Development |
| USD | United States Dollar |
| WB | World Bank |

ABSTRACT

Mongolia is blessed with strategically important and rare mineral resources unlike many developed countries, so extractive sector especially on coal and copper plays a crucial role in economic growth, furthermore overall development of the country. As circulation of mineral resources generates relatively big amount of profit due to high demand, it becomes the main source of state budget and driving force for accelerating economic activities. However, many examples have shown that poor management of mining becomes major economic problem rather than a solution to smooth development. Seeing current downward trend of entire Mongolian economy and many symptoms of Dutch Disease, the country certainly faces serious issues that continue with dismissal of Prime Minister of Mongolia and collapse of government on November 5, 2014 due to mishandling of ailing economy. To fix current problems and stabilize economy in the long run, it is necessary to diversify the economy from mining sector.

Cluster is considered to be a dynamic and effective approach to make sole extractive sector into value-added manufacturing sector that links to export and development of various industries, applying a positive impact on productivity

and competitiveness of a country. Rising productivity from efficient cluster naturally leads to high living standard and prosperity. That`s why many countries have been adopting cluster approach to make their competitive industries more profitable. In fact, development of cluster is a long process that requires wise management, close public private partnership, and effort of all stakeholders of society.

One of the solutions to diversify mining-based economy of Mongolia could be the establishment of cluster especially by capitalizing on animal husbandry sectors, which are capable of producing highly value-added final goods and offering sustainable economic growth of Mongolia as they are from renewable resource. In this regard, it is rational to pay attention to immediate development of certain cluster and make the resource endowment a real blessing by spending income from mining on such promising projects.

This study therefore aims to explore the possibility of utilizing cluster approach to diversify Mongolian economy and find out more appropriate cluster.

Primary and secondary data were employed to fulfill the research objectives. The primary data were acquired through interview asking open-ended questions from experts and comparative case study whereas the secondary data

were taken from analysis of existing laws, documents, and published materials. The researcher made various studies and careful analysis to determine more competitive cluster for Mongolia. The result showed that it is effective to utilize cluster approach in Mongolia as it leads to development of other sectors and creates more employment. It was found out that export-oriented cashmere cluster possesses good potential to establish and has capability to generate more profit from export in comparison to other industries. The findings showed that Mongolia could promote cashmere cluster by creating highly-valued brand product. Furthermore, Tuv province that is geographically close to Ulaanbaatar and abundant in raw cashmere etc might be a better option for cluster location. Nevertheless, Mongolia needs to formulate underlying environment for cluster by emphasizing innovation, PPP, reforming legal framework, and linking cluster with R&D and education etc, as Mongolia doesn't have a solid experience in cluster approach. The research findings provide a recommendation for policymakers in the establishment of cashmere cluster and better regulation of further development.

Key words: *Mongolian mining; economic diversification; cluster; Mongolian cashmere*

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Mongolia, a landlocked country lacking access to the international waters and sea-based trade, is vulnerable in trading with different countries and gaining sufficient profit from it. Nevertheless, it is endowed with diverse natural resources and precious metals such as coal, copper, gold, silver, and crude oil. Mongolia possesses the world's largest copper reserves and the second-largest coal and rare earth metals' deposits (Ariunaa.Kh&Hong-Jin Kim, p.2).

Through the democratic revolution of 1990, the country adopted market economic system, privatized majority of the state property, and later undertook structural and systemic changes to legislation that led to the huge inflow of investment into its mining sector, becoming the basis of current economic growth. GDP (2013) at current USD was 11.14 billion whereas that of 2011 was 8.76 billion. CIA statistics calculated GDP (2013) with purchasing power parity (PPP) at 17.03 billion (CIA, 2015). Since Mongolia started developing mineral deposits in collaboration with foreign corporations, GDP growth rate has been more than 10%, raising the GDP per capita (PPP) to 5900 USD in 2013 (CIA data, 2015). It

also translated into the reduction of poverty from 39% to 29% in 2011 (Kristyna Pelikanova, 2013).

On the other hand, this mining-driven economic growth has not led to sustainable and healthy development as almost the whole economy depends on one sector. The share of mining currently stands at about 30% of GDP and 90% of exports, and the World Bank predicts that the contribution of mining sector to GDP and exports will experience more than 50% and 95% rise respectively when Oyu Tolgoi- gold and copper deposit in the Gobi region of Mongolia- becomes fully operational by 2016 (Kristyna Pelikanova, 2013). But, the sector employs only about 4% of the entire workforce. On the contrary, the traditional agricultural sector employs about 40% of the workforce, yet contributes less than 15% of GDP. And, Mongolia's manufacturing sector comprised about a third of the economy in 1988 or just before the collapse of communism but the figure had been reduced to only 7% by 2011 (Pearly Jacob, 2013). In addition, Mongolia is vulnerable to recession as its trade mostly depends on its two neighbors. When China and Russia increases the price of import products and imposes quota and other pressures, Mongolian economy falls in serious inflation and related crises. Moreover, macroeconomic volatility is a concern to Mongolia for two reasons.

First, even before the current mining boom started gaining a full momentum, Mongolia was characterized by very high inflation volatility. Now, due to the economic growth and increasing circulation of hard money, inflation rate still stands high - at 14.9% as of July, 2014 (NSO, July 2014). Second, the price of copper, key Mongolian export, has been much more volatile than oil (Asel Isakova et al., 2012: p.4). When the prices of main Mongolian minerals for export fall in the international market, the real profit decreases putting the country in chronic budget deficit. Furthermore, Mongolia is likely to get sick as symptoms of Dutch disease have become prevalent to some extent. Several visible symptoms in the economy are coupled with persistent unemployment, widening income gap, and still high poverty rate without quality growth, all of which point out that the country isn't able to develop sustainably and grow in real terms if it continues focusing on mining sector and ignoring other industries since many cases have proven that resource blessing can easily get changed into resource curse.

In view of the abovementioned factors and potential threats of Dutch Disease, Mongolia should diversify its mining-based economy into other revenue-generating sectors by carefully analyzing its capacity, expected benefit, and capability. One solution for economic diversification is establishing a

competitive cluster that is able to promote local development, other related industries, and decentralization besides contributing to stable profit generation and resulting in economic growth, employment creation, and social development.

Livestock-based cluster could be promising for supplementing economic development because it was the major and traditional economic sector during the socialist period, and Mongolia is abundant in livestock-51,980,926 heads at the end of 2014- although the population of Mongolia is only 2.9 million. Comparing to 2013, the number of livestock has increased by 6.8 million heads or 15.1% (NSO, Dec 2014). So, there is high possibility and potential for Mongolia to make progress in promoting its traditional subsistence industries. Or it could specialize in medicinal plant cluster as Mongolia has a variety of rare natural herbs in the wild that have a strong healing effect for different diseases. Likewise, the country has certain competitive fields that could be put into economic circulation through cluster. Diversification of economy on cluster might bring up various challenges. However, if Mongolia could deal with them in an integrative approach and fully support at national level, it will have more sources of national income that could be used for other long-lasting development projects and providing stable employment. This research is intended to explore this possibility.

1.2 Research Questions

The main research question of this study is; how can Mongolia diversify its economy from mining sector through cluster approach in order to prevent from Dutch Disease? And what could be more promising and potential sector to facilitate diversification?

To answer the main research question, following sub-questions were developed:

- What is cluster?
- How did the economic situation of Mongolia change after a huge investment in the mining sector?
- Is economic diversification based on cluster approach beneficial for Mongolia?
- What strengths and weaknesses does Mongolia have in establishing clusters?
- How can Mongolia overcome the challenges of establishing clusters?

1.3 Research Objectives

The main objective of this research is to find out possible ways of how Mongolia can diversify its economy from mining sector in order to prevent from Dutch Disease and the role of cluster-based approach in facilitating the diversification.

Sub-objectives of the Research are

- to analyze current economic issues that are negatively affecting the growth of Mongolian economy from mining boom
- to determine possible ways to diversify the economy that can incorporate healthy development
- to come up with appropriate sector that could be developed through cluster approach
- to analyze the strengths and weaknesses that Mongolia holds when establishing cluster
- to find out means and mechanisms that can promote cluster as a better diversification method

1.4 Significance of the Study

It is worth mentioning that several studies have been done by the governmental agencies and international organizations about the significance of diversifying economy, hence supporting agricultural sector and light industries through financial means or beginning to construct industrial parks in order to process the primary resources we have and promote exports. However, none has seen the possibility of diversifying Mongolian economy by promoting more

potential and capable sector particularly through cluster approach; thus sustainably developing the country. There is also no tangible measures regarding cluster.

Therefore, this study attempts to fill in this gap by focusing on demonstrating the effectiveness and advantage of cluster approach and finding out an appropriate cluster that could become one of the main profit-generating export industries and whose contribution to competitive advantage of Mongolia could bring up other positive spiral effects.

In addition, as the researcher will propose some policy recommendations and methods that make economic growth of Mongolia relatively sustainable and support healthy development of mining sector by diversifying the economy, it could possibly be helpful to the policymakers in tailoring various strategies to prevent from Dutch disease crisis and revive the basis of economy.

Moreover, it is significant to the general public to obtain an understanding of potential danger in mining sector and let them know about different ways to reach real economic development, for instance, by fueling the windfall profit from mining sector into creating better cluster-based industries.

1.5 Research Methodology

1.5.1 Research Strategy

The main purpose of this research is to find out possible ways of how Mongolia can diversify its economy from mining sector in order to prevent from Dutch Disease and the role of cluster-based approach in facilitating the diversification. The following methodology was utilized to achieve the purpose.

The methodology is divided into six sections: 1. Research strategy; 2. Research design; 3. Population and Sampling techniques; 4. Data collection techniques; 5. Data analysis; 6. Limitation of the Study

1.5.2 Research Design

In this research, qualitative method was used through interactive interview to understand expert opinion on current development pattern of Mongolia (as reality-check), as well as how Mongolia could diversify its economy by utilizing existing capability in a form of cluster and whether cluster is viable and beneficial in the case of Mongolia. This method was used due to its efficiency of gathering in-depth explanatory data from a small sample. Interviews were taken by using pre-prepared open-ended questions.

Another qualitative method was carried out through case study on Chile`s

Wine Cluster in order to confirm whether cluster approach can be an alternative way to diversify the economy of resource-rich countries and to demonstrate main factors behind Chile`s cluster growth. By learning from the experience of Chile and imitating some of its strategies, Mongolia might be able to develop a cluster more profitably and effectively.

Also, investigation of relevant information was conducted from existing laws, documents, books, journal articles and other government-conducted data.

1.5.3 Population and Sampling Techniques

The target population for conducting interview was as follows:

1. Representatives (6 people) from Ministry of Economic Development, Ministry of Industry and Agriculture, and Ministry of Mining were individually interviewed.
2. Representatives (3 people) from National Development and Innovation Committee of Mongolia (NDIC) were interviewed.
3. Representatives (3 people) from The Mongolian Development Research Centre (MDRC) were interviewed.
4. Representatives (5 people) from Mongolian Wool&CashmereAssociation (MWCA) and Mongolian Meat Association were interviewed.

5. Representatives (5 people) from School of Economics, National University of Mongolia were interviewed.

Above ministries were selected (deliberate or purposive sampling) because they implement state policies related to economic development and propose legislations towards a better direction. I opted for NDIC and MDRC as these entities are in charge of formulating national development strategy, innovations and investment policy, and undertaking research on the issues relevant to development. And, I targeted representatives of MWCA and Mongolian Meat Association since they could provide answers to current operating situations of the industries, their future growth potential (related to cluster), and difficulties they face. Lastly, School of Economics was chosen because it consists of professionals and academia that study the core of economic development and have a deep knowledge on current and future trends and on successful economic sectors of Mongolia. However, simple random sampling technique was used to choose overall 22 interviewees from the ministries and organizations based on their availability and time.

1.5.4 Data Collection Methods

Primary Data Collection:

In order to accomplish the purpose of this study, the researcher visited Mongolia and collected the primary data by interviewing 22 representatives from related ministries, government agencies, Wool&Cashmere Association, Mongolian Meat Association, and School of Economics from February to April, 2014. The interview was conducted using in-depth interview techniques among the following target groups:

1. Government Group: Ministry of Economic Development, Ministry of Industry and Agriculture, Ministry of Mining, NDIC.

2. NGOs Group: MDRC, MWCA, Mongolian Meat Association

3. Academia Group: School of Economics, National University of Mongolia

The researcher paid a visit to target institutions one by one during working hours to take interview. Data collection work lasted over two months since the officials were not available for an interview or were away on out-of-office duty. The interview consisted of 11 questions (attached in the annex) covering current economic condition, possibility of cluster development for economic diversification, measures to be taken for sustainable economic development, and so on. As for further analysis, the researcher took notes and memos from each interview.

Secondary Data Collection:

For the case study on Chilean Wine Cluster, the researcher surfed through various secondary data mostly on the internet and gained a pool of information from annual reports of Wines of Chile, an institution that promotes the quality and image of Chilean wine throughout the world, and from other related organizations.

In addition, following secondary data were reviewed with the aim to discover works on basic legal framework that would become an impetus to future cluster development and top-down support and also to prepare policy recommendation:

- Laws and Regulations on investment environment and cluster development;
- Study and Report on cluster development by the Ministry of Economic Development;
- National Program on Regional Development;
- National program on Cashmere Industry support;
- Statistical data and reports;
- Journal articles and books;

1.5.5 Data Analysis

Analysis of data collected from interviews was done with following steps:

- Data reduction: Since the original data from interview is of sheer size and complex, extracting the information that is relevant to the analysis and eliminating the one that is not was necessary; then the data will be sharpened, sorted, and focused in a way that deeper analysis could be carried out.
- Data display: This process was done to organize the data that would be used in drawing conclusions and recommendations. The data was categorized into the main and supplementary topics for analyzing.
- Conclusion: It is the final stage in the data analysis. The researcher established the data and findings and developed conclusion and policy recommendations.

Analysis of secondary data on the Chilean case study was conducted through a deep content analysis and coming to the conclusion. Also, the analysis of existing legislation, state documents and reports, and national programs etc was executed through content analysis.

1.5.6 Limitation of the Study

Economic diversification through cluster development is a popular yet

relatively new term for developing countries. It also requires all-out effort and is a long process since it covers various aspects. The given research has advantages as it provides detailed explanation on cluster-related concepts and capability, viability of Mongolia to diversify economy through cluster approach, and points out more potential cluster for Mongolia along with its possible location.

However, due to limitation of time, means and availability, this research is unable to take interviews from more number of officials and conduct survey covering all regions of Mongolia. In addition, it was unable to carry out deep and theoretical analysis of cluster development of Mongolia since there is currently no tangible cluster in the country and hence there is lack of information and data regarding the theme.

1.6 Organization of the Study

The Thesis is organized into eight chapters.

Chapter One is the introduction, which includes the background of the study, statement of the problem, research questions, research objectives, significance of the study, and research methodology.

Chapter Two of the study presents the literature review on concepts of Cluster, Value Chain, and other related theoretical perspectives.

Chapter Three provides brief introduction to Mongolia and its mining sector and analysis on the current economic situation and cluster development.

Chapter Four is the analysis of interview findings and presentation of results.

Chapter Five deals with the case study on Chile, which could diversify its economy from copper mining with the help of cluster approach particularly on wine.

Chapter Six focuses on the Strategic Importance of Cashmere for cluster development of Mongolia and finding out possible location. The brief comparative study on Mongolian cashmere and Loro Piana, a leading Italian cashmere producer, supplements the chapter.

Chapter Seven concentrates on the discussion of findings from analyzed data and the case studies.

Chapter Eight provides the conclusion and policy recommendations for better management of proposed cluster.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 The Concept of Cluster

The concept of cluster is modern description for geographical concentration of economic activities, which is believed to be a vital factor for economic development. Marshall (1890), in his *Principles of Economics*, described the advantages of agglomeration of economic activities in the 19th century and pointed out externalities of specialized industrial locations (European Communities, 2008:p.12). Particularly, he brought up three motives why firms locate close to each other as following: the proximity to their suppliers, a specialized local labor market, and the presence of knowledge spillovers (Philipp Ehrl, 2011:p.3). Similarly, Schumpeter (1939) referred to the “swarming” or clustering of industry (European Communities, 2008:p.12). It built upon traditional location and agglomeration theory and integrated other concepts such as industrial districts, growth poles, new industrial spaces, systems of production, national or regional innovation systems, and learning or creative regions (European Communities, 2008:p.13). Becattini (1979), an Italian researcher,

introduced the concept of industrial districts for regional policy and territorial development. Based on Alfred Marshall's argument, he pointed to an importance of place-based economic development with the notions of external economies that changed approach to industrial policy. He also raised the significance of social capital geography, sociology, politics and history in the delineation of innovation policies (European Communities, 2008:p.13).

But later, in the 1990s, Michael E.Porter¹ popularized the concept of cluster more and gave comprehensive description. As Porter (1998) pointed out, the enduring competitive advantages in a global economy lie in local things- knowledge, relationships, and motivation that distant rivals can't match- and all these local forces are knit together within a cluster. The concentration of economic activities in clusters is seen as results of "competitive advantages" of firms in finding new and better ways to compete in an industry and to bring innovation faster to the market (European Communities, 2008:p.13). According to

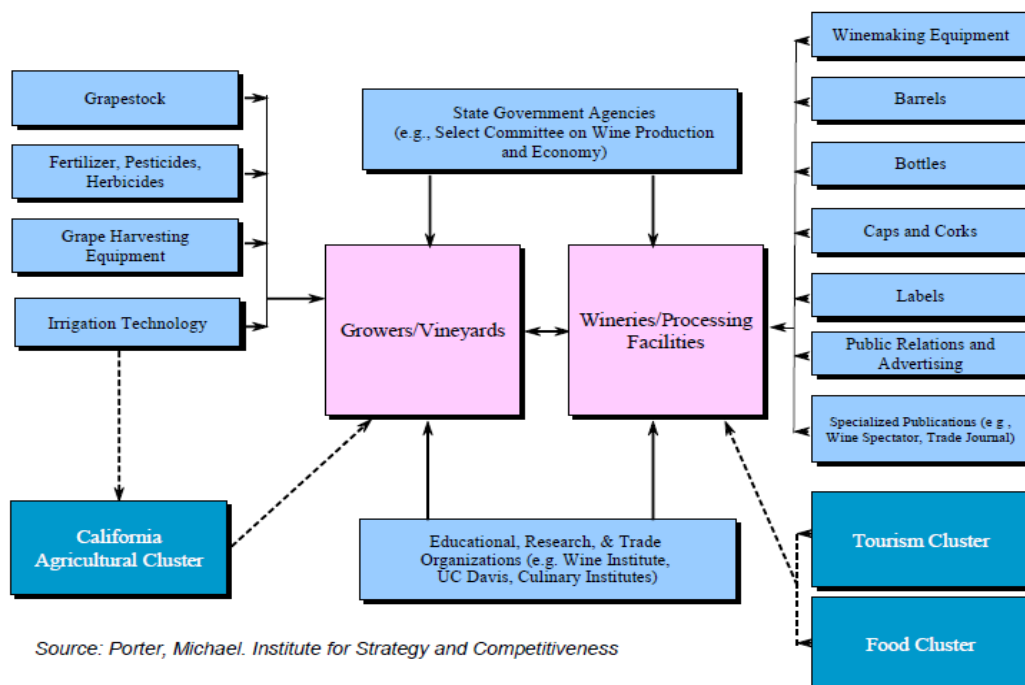
¹ Michael E.Porter is the Bishop William Lawrence University Professor based at Harvard Business School. He is recognized as the father of modern strategy field and a leading authority on competitive strategy; the competitiveness and economic development of nations, states, and regions; and the application of competitive principles and strategic approaches to social needs such as health care, innovation, and corporate responsibility (Faculty and Research, Harvard Business School).

Porter (1998: 78), clusters are basically critical masses in one place of unusual competitive success in particular fields. Clusters encompass an array of linked industries important to competition. For instance, they include suppliers of specialized inputs like components, machinery, and services, and providers of specialized infrastructure. Clusters often extend downstream to channels and customers and laterally to manufacturers of complementary products and to companies in industries related by skills, technologies, or common inputs. Finally, many clusters include governmental and other institutions- universities, standards-setting agencies, think tanks, vocational training providers, and trade associations that provide specialized training, education, information, research, and technical support (Michael Porter, 1998: p.78). Foreign firms can also be part of clusters, but only if they make permanent investments in that local arena (Michael Porter, 2000: p.4).

There are other definitions of cluster and some differ depending on the context. For example, the Community Framework for State Aid for Research and Development and Innovation defines innovation clusters as groupings of independent undertakings- innovative start-ups, small, medium and large undertakings as well as research organizations- operating in a particular sector and

region and designed to stimulate innovative activity by promoting intensive interactions, sharing of facilities and exchange of knowledge and expertise and by effectively contributing to technology transfer, networking and information dissemination among the undertakings in the cluster. In more general terms, clusters can be defined as a group of firms, related economic actors, and institutions that are located near each other and have reached a sufficient scale to develop specialized expertise, services, resources, suppliers and skills (European Communities, 2008:p.11).

Figure 2.1 California Wine Cluster



Source: Michael Porter, 1998: p.79

California Wine Cluster is a typical example of cluster. It includes 680 commercial wineries, several thousand independent wine grape growers, and suppliers of grape stock, irrigation and harvesting equipment, barrels, and labels. In addition, specialized public relations and advertising firms, local institutions like universities, some linkages to other California clusters in agriculture, food and restaurants, and wine-country tourism all exist together (Michael Porter, 1998: p.78).

While there are different definitions and schools of thought, clusters generally comprise of 3 dimensions.

1. Clusters are seen as geographical concentrations or bundling of different strengths, becoming a promising strategy for firms to remain globally competitive (European Communities, 2008:p.13). It's widely recognized that changes in technology and competition have diminished traditional roles of location as various inputs can be sourced in global markets. Yet, clusters reveal the role of location in competitive advantage of national, regional, state, and metropolitan economy. Clusters suggest that a good deal of competitive advantage lies outside companies and industries, residing instead in the

locations at which their business units are based (Michael Porter, 2000:pp.2-3).

2. Clusters serve a functional purpose to provide specialized and customized services to a specific group of firms, such as the provision of advanced and specialized infrastructure, specific business support services or training and coaching of staff. Cluster organizations help to channel, facilitate or provide access to facilities and services, which may include specialized research and test centers, consultancy, training, and so on. In this sense, clusters are a form of self-organization that offers competitive advantages (European Communities, 2008:p.13).
3. Clusters are so-called “institutional fix” or social glue that holds together different interlinked innovation actors namely universities, businesses and public authorities and facilitates intense interaction amongst them. Over time, clusters tend to develop a set of norms, institutions, personal networks, and trust. Dynamic and effective interaction and cooperation in the knowledge triangle of education, research and innovation are crucial for realizing competitive advantages in times of increasing complexity of new technologies,

products and services as well as of changing requirements for skills and competences (European Communities, 2008:p.14).

As it is also cited in C.H.M Ketels and O.Memodovic (2008:4), the first pillar of cluster is geography. The second pillar is value creation. Clusters include companies in distinct industries that are interrelated in the production of goods and services further valued by customers. The third pillar is the business environment. Clusters are affected by cluster-specific business environment conditions resulting from individual actions as well as cooperation of companies, government agencies, universities and other institutions in the national and regional innovation system.

Clusters promote both competition and cooperation. Rivals compete to win and retain customers, yet there is also cooperation, mostly vertical, involving companies in related industries and local institutions. Cluster is an alternative way of organizing the value chain. Compared with market transactions among dispersed and random buyers and sellers, the proximity of companies and institutions in one location-and the repeated exchanges among them- fosters better coordination and trust (Michael Porter, 1998: p.79).

Poor countries lack well-developed clusters; they compete in the world market with cheap labor and natural resources. To advance their development stage, creation of well-functioning clusters is important. Since it is a long process, countries start by putting the foundation together- improving education and skill levels, building capacity in technology, opening access to capital markets, and improving institutions. Overtime, additional investment in more cluster-specific assets is required (Michael Porter, 1998:p.86).

Economic benefits for firms located in a cluster are many:

- a bigger local market for products and services
- low costs in transport, supply chains and easier access to resources; the cluster provides higher degree of specialization in services and products
- specialized workforce will be created
- Marshall-Arrow-Romer (MAR) spillover² has proven that proximity of firms from the same industry allows collaboration and an exchange of knowledge, information, and ideas between them, creating a trust relation.

² This view was finalized in 1992, and says that the proximity of firms within a common industry affects how well knowledge travels among firms to facilitate innovation and growth. The closer the firms are to one another, the greater the MAR spillover is (Edward L. Glaeser et al., 1991: p.3).

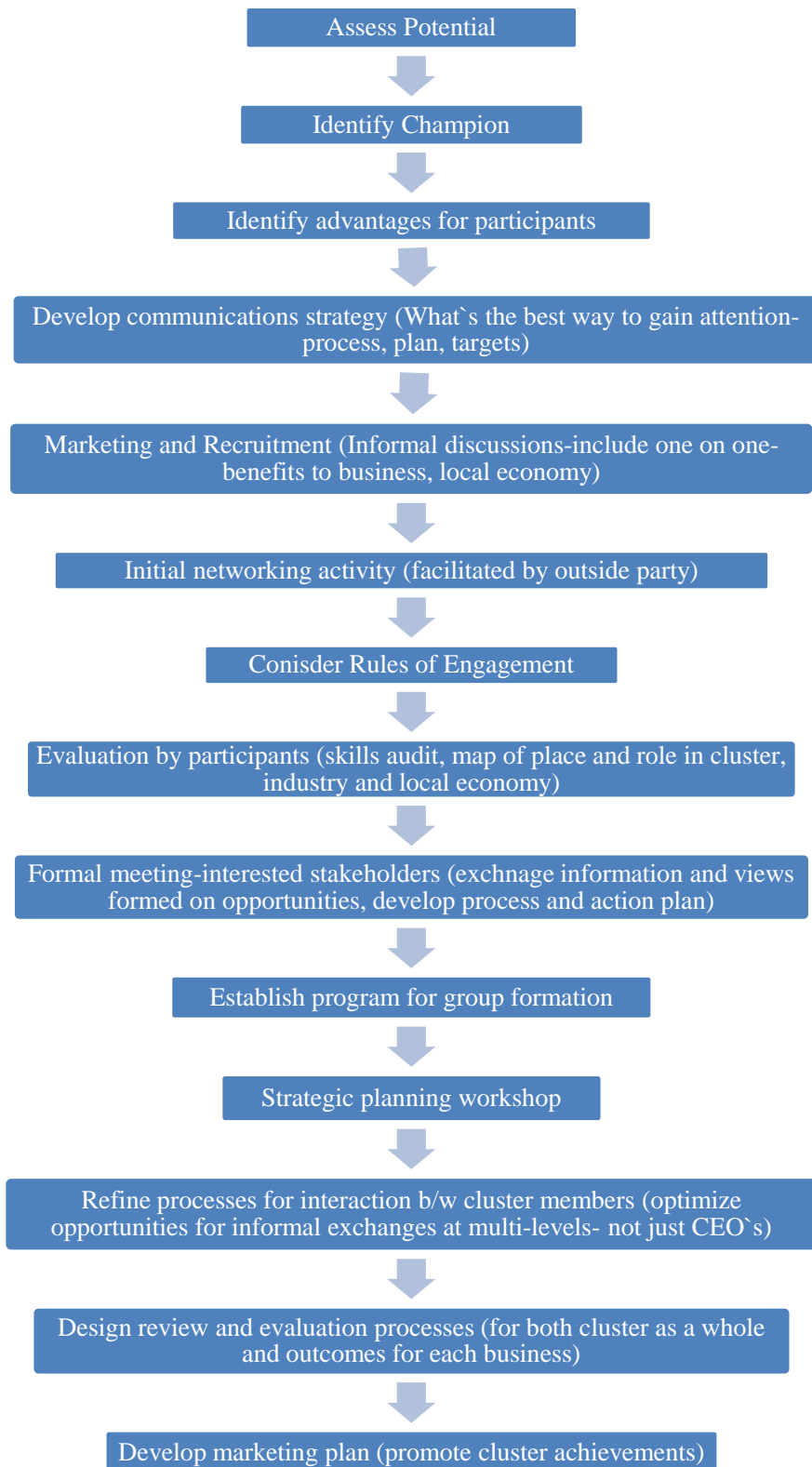
- clusters sustain consistent innovation and higher productivity
- firms within clusters mostly specialize to maintain or gain a competitive advantage (Catalin Boja, 2011: p.3).

Clusters are also a driving force in increasing *exports* and are magnets for attracting *foreign investment*. They provide an essential forum in which a new dialogue can take place among companies, government agencies, and institutions such as schools, universities, and public utilities (Michael Porter, 2000: p.3). Finally, clusters foster open communication, complementarities and commonalities, and spillovers in terms of technology, skills, marketing, and customer needs that cut across firms and industries (Michael Porter, 2000: p.5).

2.2 How Clusters Develop

The initiative engages comprehensive assessment of related markets, products, linkages, externalities, and so on to develop sound business and market strategies to tackle expected problems. Focus on market information, workforce development, supply chain improvements, quality standards, branding, forward integration, and process improvements are prioritized for cluster development (WB, 2009: p.16)

Figure 2.2 Cluster Development Flowchart



Source: Kleinhardt-FGI, p.23

Thus, clusters develop over time through many trials and errors; they are not a phenomenon that just appears or disappears overnight. Some are created from networks of SMEs while others are linked to a big company or university. Spin-offs, for example, develop around university drawing on the human capital and ideas of the key academic institution. Although there is no single model for clusters, among the most frequent sources of cluster development are specific aspects of location, specific business environment conditions, related clusters and the long-term impact of specific entrepreneurial decisions by private or public sector leaders. The process from starting conditions to fully developed clusters takes several decades (C.H.M Ketels&O.Memodovic, 2008: p.7).

Clusters emerge not only in the fields that are new for a regional economy, but also in the fields that capitalize on present local assets and knowledge. Its nature can change over time in the same way as life cycle. Newly rising clusters have few separate entities and activities. As it gets bigger, more interaction occurs and cluster performances improve dramatically. Clusters then begin to attract companies, individuals and capital from other locations, further adding to their potential. Mature ones are exposed to rising factor costs and face the threat of becoming tied to a certain technology or operating model, which can

become obsolete through technological innovation or changes in market demand.

At any stage, especially in the early stages of cluster evolution, there can be shocks that deviate the cluster from its main trajectory (C.H.M Ketels&O.Memodovic, 2008:p.8). In the development of cluster, private sector has a strong leadership role. Active government support in a *privately led effort*, rather than an initiative controlled by government, will have a better chance of success because companies tend to identify the obstacles, opportunities, and constraints faster than can government, and private sector has better implementation ability (Michael Porter, 2000: p.18).

2.3 Government Role for cluster-based economic policies

Although there are many actors that have a critical role in creating clusters, government has a pivotal contribution. First, a successful cluster policy builds on sound economic policies-macroeconomic and political stability. Governments need a good strategy for upgrading competitiveness. Cluster development should be a part of that tactic, but it can't substitute for missing reforms in other areas such as education, labor market regulation or competition law. Second, government should be open to support all clusters that show the willingness for cooperation and have some assets to build on. Policy shouldn't

pick winners among clusters but should reinforce established and emerging clusters rather than creating entirely new ones. Third, government should be engaged in cluster initiatives as a facilitator and participant, not as the leader. The most successful cluster initiatives are public–private partnerships (PPP). And fourth, government should not provide subsidies, protection or relaxation of competition laws to develop clusters (C.H.M Ketels&O.Memodovic, 2008: p.9).

Cluster-based economic policies tend to be mistaken with centralized industrial policy. They are similar in a sense that policies are specific to a cluster or an industry, but take differing approaches on actions. Often industrial policies have targeted areas of market demand or attractive technology. Then they intervene in competition (subsidies, protection and so on) and favor domestic companies thinking that national champions will emerge amid global competition. It requires persisting financial commitment by the public sector and is moved by the centralized decisions at the national level. Many times it fails even if there is a positive short-term impact (C.H.M Ketels&O.Memodovic, 2008:p.9).

In contrast, cluster-based policies utilize local assets, capabilities, history and geographic location, and are open to all clusters in a location. They are neutral on ownership and enable competition to be more sophisticated. Their success

depends on the participation by all stakeholders at all geographic levels. Rather than exclusion of foreign firms, cluster theory calls for welcoming them as they enhance cluster externalities and productivity, local investment, and employment. Rather than advocating for blocking imports, it stresses the need for timely and steady opening of the local market to imports that boosts local efficiency, provides needed inputs, upgrades local demand conditions, and stimulates rivalry. Cluster thinking recognizes the initiative at the local level (Michael Porter, 2000: pp.14-15). The impact might be low at first but it rises over time.

Governments have leveraged clusters to improve efficiency of economic policies aimed at economic diversification and regional development. Workforce skill development programs were organized around cluster groups of companies and educational institutions. By focusing policy tools on clusters, government can influence the competitiveness of several companies simultaneously. And it can reap additional benefits from the spillovers in the cluster that were triggered through the policies. Rather than improving competitiveness company by company, a cluster-based use of economic policy instruments reaches entire group of companies (C.H.M Ketels&O.Memodovic, 2008: pp.9-10).

2.4 Clusters are critical to raising competition

Clusters affect competition in three broad areas.

1. By increasing the productivity of companies within the area; Being part of a cluster allows companies to operate more productively in sourcing inputs; accessing information, technology, and needed institutions; cooperating with related companies; and measuring and motivating improvement (Michael Porter, 1998: p. 81).
2. By driving the direction and pace of innovation, which determines future productivity growth; The ongoing relationships with other entities within the cluster help companies to learn early about the evolving technology, component and machinery availability, service and marketing concepts, and so on. Such learning occurs by making site visits and frequent face-to-face contact. Companies within cluster can experiment at lower cost and can delay large commitments until they are more assured that a given innovation will pay off. Another reason why it drives innovation is competitive pressure that is peer pressure, pride, and the desire to look good in the community spur entrepreneurs to outdo one another and engage in continuous innovation activity (Michael Porter, 1998:p.83).

3. By stimulating the formation of new businesses, which expands and strengthens the cluster itself. For example, new suppliers proliferate within a cluster because a concentrated customer base lowers their risks and makes it easier for them to spot market opportunities. Useful assets, skills, inputs, and staff are often readily available at the cluster location, waiting to be assembled into a new enterprise (Michael Porter, 1998:p.84).

2.5 Types of Clusters

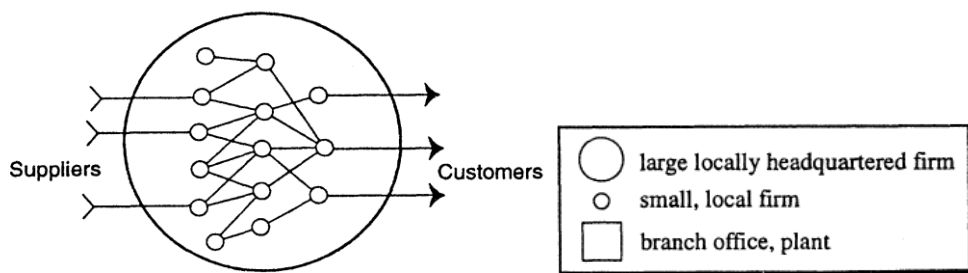
Depending on the context and diverse cases, classifications of cluster can vary. Michael E.Porter described two types of clusters; vertical and horizontal. Vertical clusters consist of industries and firms linked through buyer/seller relationships, whereas horizontal clusters share a common factor. This may be market for end products, common technology, skills, or natural resource (Kleinhardt FGI, 2002: p.5).

The relation between firms inside a cluster based on regular inter-firm activities such as supplier - customer transactions has been analyzed in order to describe cluster topologies. Ann Markusen (1996) takes this factor into analysis and identifies four categories of industrial clusters (Catalin Boja, 2011: p.2).

A. Marshallian and Italianate Industrial Districts

In his original formulation of the industrial district, Marshall imaged a region where the business structure consists of small, locally owned firms that make investment and production decisions locally. Within the district, certain amount of trade occurs between buyers and sellers, entailing long-term contracts or commitments, but cooperation with firms outside the district are minimal. Figure below shows many small firms buying and selling from each other for eventual export from the region. The arrows indicate necessary purchases of raw materials and business services from outside the region on the left and sales to external markets on the right, in the form of exchange rather than cooperative relationships external to the region. What makes the industrial district special is the nature and quality of the local labor market, which is internal to the district and highly flexible and labor outmigration is minimal (Ann Markusen, 1996: p.8).

Figure 2.3 Marshallian Industrial District

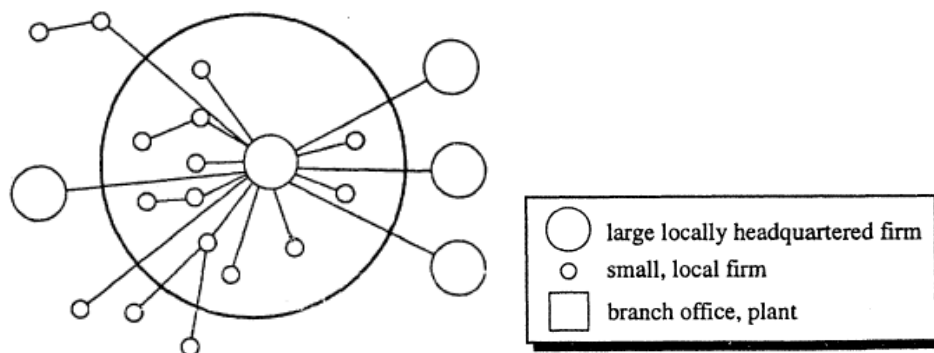


Source: CatalinBoja, 2011: p.2

B. Hub-and-Spoke Cluster

Here, few dominant firms represent the core of the cluster and are surrounded by many small firms that are linked directly to them. The most part of the cluster firms represent suppliers of raw materials, of externalized services or are specialized in a particular phase of the hub production process. The small firms trade directly with the large ones and depend on their client strategy. The hub firms define the relation inside the cluster and its dynamics (Catalin Boja, 2011: p.2).

Figure 2.4 Hub-and-Spoke District



Source: CatalinBoja, 2011: p.2

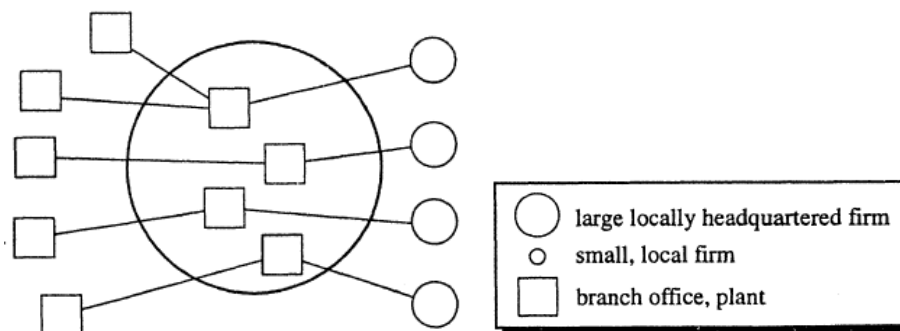
C. Satellite Platform Cluster

In this cluster, a group of branch facilities of externally based multi-plant firms are located in a particular geographical region to benefit from governmental facilities or low costs with supplies and workforce. There are no relations between

satellite firms and they are entirely controlled by the remotely located parent firm.

Thus, it contains mostly high-tech branch plants or low-wage, low-tax, and publicly subsidized establishments (Catalin Boja, 2011:p.2).

Figure 2.5 Satellite Platform Cluster

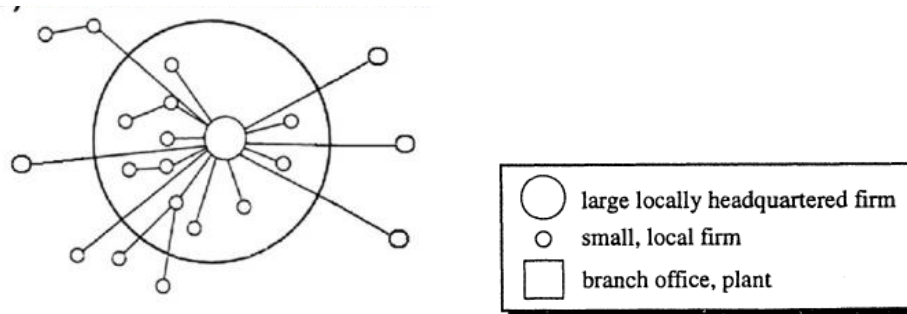


Source: CatalinBoja, 2011: p.2

D. State anchored Cluster

It is defined around a public, governmental or non-profit organization that dominates the region and the economic relation between cluster members. This entity is surrounded by numerous small firms that benefit from public-private contracts. It can be compared to hub-and-spoke type cluster in which there is one dominant key player that isn't controlled by the private sector (Catalin Boja, 2011: p.3). An example is the U.S city Denver owes much of its postwar growth to its hosting of the second largest concentration of federal government offices in the nation (Ann Markusen, 1996: p.15).

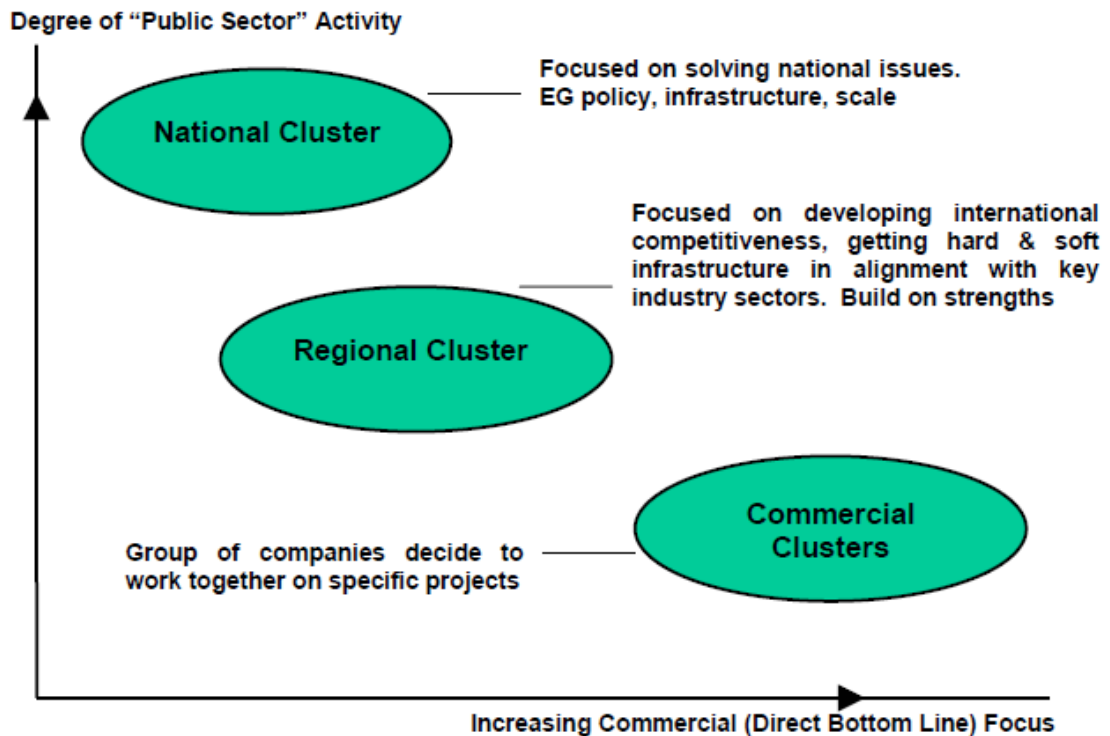
Figure 2.6 State centered cluster



Source: Catalin Boja, 2011: p.2

Then, clusters could be divided depending on the level. Porter classifies as below. He puts more emphasis on the regional cluster, assuming that success of a nation is born from local factors. This type of cluster focuses on developing international competitiveness and building further on strengths and potential of the region or that local place, getting hard and soft infrastructure in line with promising industry sectors (Kleinhardt FGI, 2002: p.5).

Figure 2.7 Level-based Cluster Type



Source: Kleinhardt FGI, 2002: p.5

Last but not the least, we could also classify clusters into, for instance, technology clusters like Silicon Valley and exporting clusters, which export products or make investments to compete outside the local area, becoming the primary source of an area's economic growth and prosperity over the long run (Michael Porter, 1998: p.82).

2.5.1 Export-oriented Cluster

Companies cooperate with each other to gain from collective actions and focus on structural issues in the embryonic stage of cluster. As it matures and

starts recognizing the need to increase competitiveness and benefit, parties in developing clusters engage in innovative activities to improve their efficiency and make transformations. Once productivity and competitive advantage grow through innovation and R&D, export promotion automatically comes into being and becomes priority for developing countries that earns little from its domestic market (ILIRD, 2012). But, it's a complicated task so the 1st step in promoting export cluster is to analyze internal and external developments that is probable to influence the performance of cluster (S.V.Moosavi&M.Noorizadegan, 2009: p.184). Then, efforts in developing infrastructure, production capacity and technology, marketing, manpower development, logistics, quality assurance, finance etc should come in. However, S.V.Moosavi&M.Noorizadegan (2009:171) say that at least networks and partnerships, strong skills base, and innovation and R&D capacity etc are required to start successful export strategy. Some literatures point to other factors to start facilitating export-led cluster activities that are more relevant to developing countries. For example, confirmed production capacity within the target geographic area, some form of actual competitive advantage in terms of process, product, and cost etc, latent readiness among producers to

cooperate, and international demand for the product should be in existence (S.V.Moosavi&M.Noorizadegan, 2009: p.165).

Export-oriented clusters create employment and tend to generate above average wages, productivity and innovation in the target location (WB, 2009: p. 15). Plus, members within this cluster will benefit from collective actions such as joint marketing, purchasing, and technology management, training, facilities, testing etc, all of which drive economies of scale (S.V.Moosavi&M.Noorizadegan, 2009: p.160). As it requires advancement in logistics and infrastructure, the government has a pivotal role. Export-oriented clusters are rather new and emerging strategy, yet very effective method for developing countries to achieve export and overall development and beneficially diversify its economy (S.V.Moosavi&M.Noorizadegan, 2009: p.159).

2.6 Clusters vs. Value Chains

Clusters differ from value chains in two ways. First, a value chain³ is rarely confined to one geographic area. For example, cocoa beans produced in Indonesia may be processed in Europe into chocolate bars that are sold in the

³ Value chain is defined as the full range of activities required to take a product from its conception to its end use, or it is the whole series of activities that create and build value at every step. The total value delivered by the company is the sum total of the value built up all throughout the company. Michael Porter developed this concept in his 1980 book “Competitive Advantage” (The Economic Times).

United States. On the other hand, cluster is co-location in a certain region. Second, a value chain is focused on a specific product, such as chocolate. Cluster, on the contrary, is linked by common or complementary products, skill needs, technologies or infrastructure. A chocolate manufacturer in Europe may be located in a region where there are other food processors, packaging manufacturers, advertising firms specializing in food products, food standards organizations, food science degree programs, industry associations, and other related groups. These entities may not be directly linked into the chocolate value chain, but would be part of a local food processing cluster. Every product and firm is part of a value chain but relatively few in developing countries are part of a cluster. A cluster is distinguished by synergies brought about by the co-location of related parts of an industry. Firms that aren't part of a cluster may be competitive, but they tend to be successful with special advantages from cluster relationships (Amy Cogan Wares, 2008: p.10).

CHAPTER THREE

3. SITUATION IN MONGOLIA

3.1 General Description of Mongolia

Territory, Population, and Brief Historical Background

Mongolia, the land of blue sky and wilderness, is a landlocked country with an area of 1.564.116 km². It is the 17th biggest country⁴ in the world with a small population of only 2.9 million⁵ and is located in the heart of Asia sandwiched between two influential powers namely Russia in the north and China in the south.

Figure 3.1 Map of Mongolia



Source: Lonely Planet, 2014

⁴ Mongolia is the second largest landlocked country in the world after Kazakhstan

⁵ According to the statistics of October 7, 2014, the population of Mongolia is at 2,976,325 (NSO, 2014).

The country has a long history, and its famous conquest and subsequent empire in the 13th century contributed to smooth development of modernization and globalization as it had ensured a peaceful order through the Silk Road combining the East with the Western civilization. When foreign people spell out the name Mongolia, the first thing that comes to their mind is its traditional nomadic life pattern and beautiful nature. Mongolia is one of few countries, which have maintained their traditional lifestyle until today in the world of urbanization or booming cities, in a sense that around 40% of population is still nomads or herders living in harmony with flora and fauna.

Mongolia regained its independence from Qing Dynasty in 1911 and was a socialist country running under the power and direction of Soviet Union from 1921 through 1990. Eventually, it chose a democratic governance following a peaceful revolution in 1990 that helped the country open itself to the outside world. Through this transformation, Mongolia adopted market economic system, privatized property, and undertook structural and systemic changes to legislation that made possible huge inflow of investment.

Mongolia, a landlocked country lacking access to the international waters and sea-based trade, is vulnerable in international trade and logistics. Nevertheless,

it is endowed with diverse natural resources and precious metals such as coal, copper, gold, silver, and crude oil.

3.2 Mongolia and Mining Sector

Mongolia's spacious territory has vast natural resources: 600 deposits bearing over 80 minerals have been discovered, including coal, iron, tin, copper, molybdenum, gold, silver, tungsten, zinc, lead, phosphates, wolfram, fluorspar, uranium, oil shale, and semiprecious stones (ADB, 1992). Mongolia possesses the world's largest copper reserves and the second-largest coal and rare earth metals' deposits (Ariunaa.Kh&Hong-Jin Kim, p.2). In addition, Mongolia has large proven reserves of fluorspar and in 2010, Mongolia was considered to be the world's third biggest producer of fluorspar after China and Mexico, producing both acid and metallurgical grades (Metals World, 2013). For the time being, Mongolia is one of 46 countries that have immense uranium reserves.

The Government of Mongolia passed the 27th Resolution based upon the Article 8.1.4⁶ of the Minerals Law of Mongolia on February 6, 2010. It pointed

⁶ The Minerals Law of Mongolia was adopted on July 8, 2006. Its Article 8.1.4 states that the competence of State Great Khural with respect to mineral issues is to approve a mineral deposit as a mineral deposit of strategic importance by proposal of the Government or on its own initiative (The Law of Mongolia, 2006).

out 15 big mineral deposits as strategically significant for Mongolian development (Mongolia's Strategic Mineral Deposits, 2011).

Table 3.1 Strategically significant mineral deposits

| № | Name | Location | Resource |
|----|----------------|-------------------------------|-----------------------|
| 1 | Tavan Tolgoi | Tsogttsetsii, Umnugovi Aimag | hard coal |
| 2 | Nariin Sukhait | Gurvantes, Umnugovi Aimag | Coal |
| 3 | Baganuur | Baganuur, Ulaanbaatar City | brown coal |
| 4 | Shivee Ovoo | Shiveegovi, Govisumber Aimag | brown coal |
| 5 | Mardai | Dashbalbar, Dornod Aimag | Uranium |
| 6 | Dornod | Dashbalbar, Dornod Aimag | Uranium |
| 7 | Gurvan Bulag | Dashbalbar, Dornod Aimag | Uranium |
| 8 | Tumurtei | Khuder, Selenge Aimag | iron ore |
| 9 | Oyu Tolgoi | Khanbogd, Umnugovi Aimag | Copper |
| 10 | TsagaanSuvraga | Mandakh, Dornogovi Aimag | copper, molybdenum |
| 11 | Erdenet | Bayan-Undur, Orkhon Aimag | copper, molybdenum |
| 12 | Burenkhaan | Alag-Erdene, Khuvsgul Aimag | Phosphorus |
| 13 | Boroo | Bayangol, Selenge Aimag | Gold |
| 14 | Tumurtein Ovoo | Sukhbaatar, Sukhbaatar Aimag | zinc, lead |
| 15 | Asgat | Nogoonnuur, Bayan-Ulgii Aimag | Silver |

Source: Mongolia's Strategic Mineral Deposits, 2011

Recent headlines of international newspapers point to two big mining projects in Mongolia.

1. Oyu Tolgoi⁷ (OT) is a huge copper and gold deposit in the South Gobi desert, around 80 km north of the border with China and 550 km from the capital city. In October 2009, the government of Mongolia signed an investment agreement for the development of OT with Canada-based miner Ivanhoe Mines backed by Anglo-Australian mining giant, Rio Tinto-renamed into Turquoise Hill- although intense talk started from 2006 (Asel Isakova et al., 2012: p.2). It is estimated to hold approximately 35 million ton of copper and 1275 ton of gold. The scale of deposits is expected to allow the project to operate for over 50 years with enormous profit (OyuTolgoi, n.d.). Commencement of production requires investment of over 4 billion USD, rising to 18.6 billion USD over its lifetime, much higher than current Mongolian GDP. On July 9, 2013, the mine finally started its production with its first international shipment of gold-copper ore, and will reach full capacity by 2017-18, supplying 450,000 ton of copper a year, which is close to 3% of the world output (AselIsakova et al., 2012: p.2). The project brought over 7

⁷ The very first geological map survey of OT was made in 1987. However, Mongolia couldn't find a convenient time to bring it into exploitation until 2001 because of numerous obstacles during the transition period. Then, in 2001, Canadian mineral exploration and development company, Ivanhoe Mines, made first of several major copper-gold discoveries near OT (Oyu Tolgoi Timeline, n.d.)

billion USD in capital, technology, jobs, and tax revenues to Mongolia through 2012 (U.S Embassy-Mongolia, 2013: p.3). By 2020, the joint-venture is projected to create more than 35% of GDP (Asel Isakova et al., 2012: p.2).

2. Another promising project-Tavan Tolgoi (TT), world's largest undeveloped coking-coal deposit, is estimated to have reserves of over 6.4 billion tons of coal. It is also situated in the South Gobi, approximately 240 km north of the border with China and 150 km away from OT. Although the mine has been in operation since 1967, the volumes were very low due to technological incapacity to fully discover the amount of reserve and lack of exploration. In order to fully develop the deposit the government launched a tender for the right of operating the West Tsankhi or the western block, which has a 888 million-ton reserve (Asel Isakova et al., 2012: p.2). As results, three local firms were allowed in July, 2013 to mine the West Tsankhi for a year (Reuters, July 2013). The East Tsankhi block is being partially developed by Erdenes TT, a state-owned mining company that owns 34% of the stake. First export of TT's coal was in 2004. In 2013, 3.2 million ton of coal was

exported by the locally-owned TT company, 2.08 million ton by Erdenes TT and 5.75 million ton by Energy Resources (Jargalsaikhan, March 2014). It will need near term investment of more than 100% of Mongolian GDP (Asel Isakova et al., 2012: p.2) as it is trying to build a coal washing facility and a power plant along with other related infrastructure. TT coking-coal project is considered as very profitable for Mongolian future since this type of coal becomes a raw material to make coke, which is then used for the production of crude iron or steel whose demand continues increasing with surging construction and infrastructure work all over the world.

Starting from above two projects, all these developments fueled inward investment, possibility for more industrial production and infrastructure projects, and overall growth in economic and social sectors. In 2011, the Mining Sector produced 20.2% of GDP, 69.6% of total industrial output and 89.2% of export product. Hence, economy reached around 17% increase, which hadn't been seen in Mongolia's economic history (Mining Mongolia- 90 years, 2012). Mongolia also became the second fastest growing economy in 2013 with 13% GDP change from the previous year (Metals World, 2013). As of the first half of 2014, the

mining sector contributed to 18.5% of Mongolia's GDP and made up 66% of the industrial sector, 83.2% of total exports, 17.5% of the national budget, and 81% of FDI (Mongolian Economy, July 2014).

Boom in the mining sector positively contributed to the main economic indicators of Mongolia until 2011, then going down from 2012 due to internal and external economic environments. The data below from World Bank show some indicators in detail.

Table 3.2 Main economic indicators of Mongolia

| Indicator Name | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 |
|----------------------------------|-----------|-----------|----------|---------|---------|---------|----------|
| GDP (current US\$) | 11.52 bln | 10,27 bln | 8,76 bln | 6,2 bln | 4,5 bln | 5,6 bln | 4,23 bln |
| GDP growth (annual %) | 11.7 | 12.28 | 17.51 | 6.37 | -1.27 | 8.90 | 10.25 |
| GDP per capita (current US\$) | 4056 | 3672.97 | 3181.10 | 2285.65 | 1715.36 | 2135.81 | 1631.90 |
| GDP per capita growth (annual %) | 10 | 11 | 15.74 | 4.78 | -2.72 | 7.34 | 8.74 |

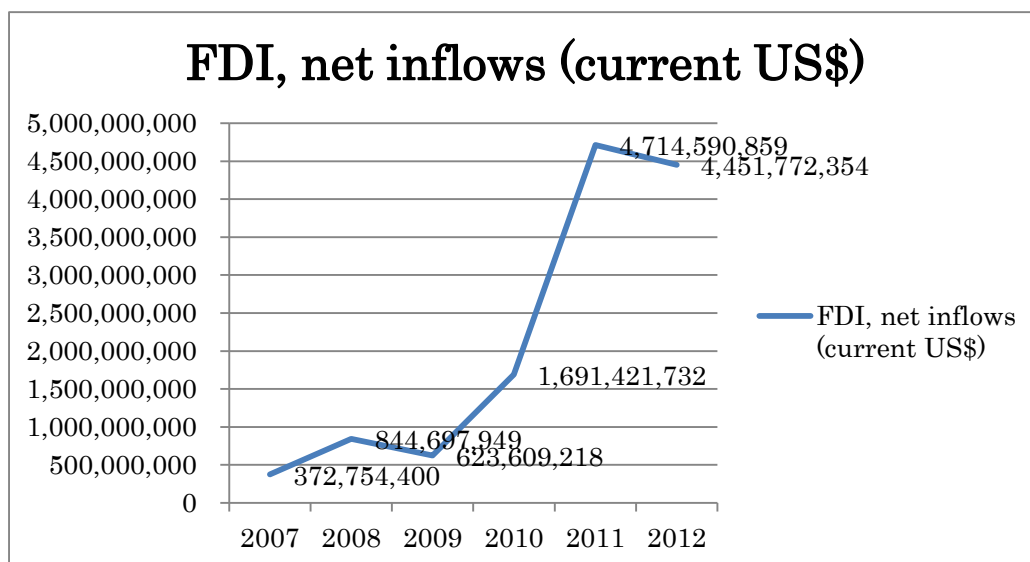
Source: World Bank, 2015

As it is shown in the table, although GDP (2013) at current USD was 11.52 billion whereas that of 2012 was 10.27 billion, higher inflation in 2013 makes the real growth not that big. CIA statistics calculated GDP-PPP (2013) at 17.03 billion USD (CIA, 2015). Since mineral deposits were put into development

with foreign corporations and fund, GDP growth rate has been more than 10%, raising the GDP per capita (PPP) to 5900 USD in 2013 (CIA data, 2015). Another source also demonstrates that annual growth of Mongolia's economy was 9.3% in 1992 and 6.5 on average in 1995-2010, then reaching 17.6 % in 2011 and going down to 12.4% in 2012, and 11.7% in 2013 (Jargalsaikhan, June 2014). Above table shows increasing and positive trends except the year 2009, whose indicators became minus due to the global financial crisis and following crash in copper prices. GDP growth also translated into the reduction of poverty from 39% to 29% in 2011 (Kristyna Pelikanova, 2013).

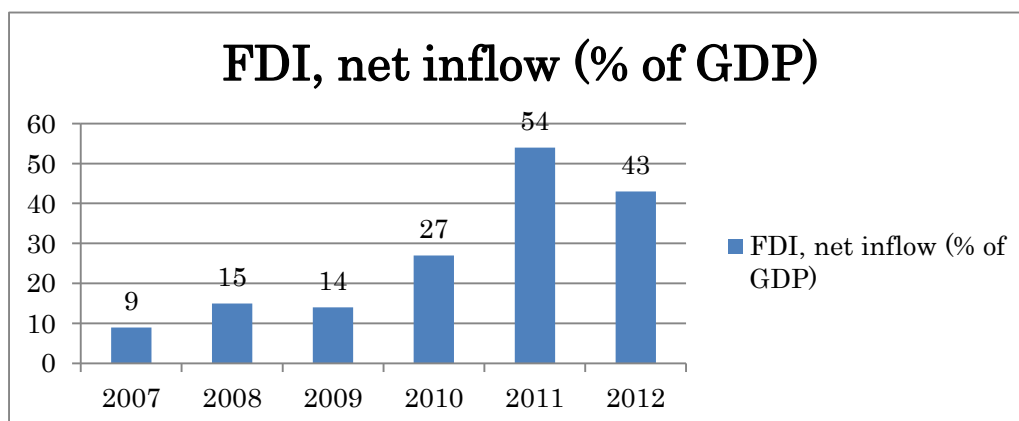
Furthermore, due to the promising mining development and better legislative regulation of the country, investment inflow mostly on mining sector increased to great extent, reaching the highest level in 2011.

Figure 3.2 FDI at current US\$



Source: World Bank, World Development Indicators

Figure 3.3 FDI as percentage of GDP



Source: World Bank, World Development Indicators

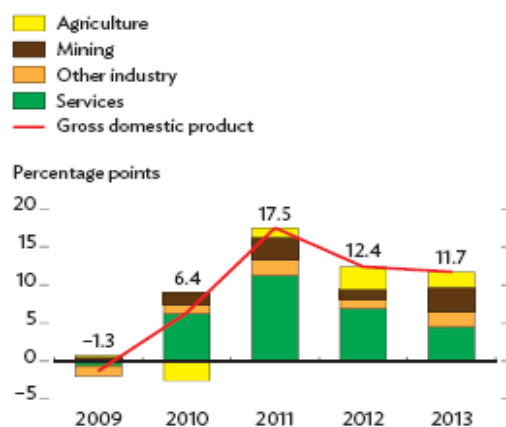
3.3 Current Economic Situation (Mining boom going towards the bust)

On the other hand, mining-driven economic growth has become bumpy as economic wellness of Mongolia is closely related to one sector. Along with looming inflation, the prices of key Mongolian minerals for export have been volatile and recently gone down putting pressure on already ailing economy.

3.3.1 All main indicators are going downward

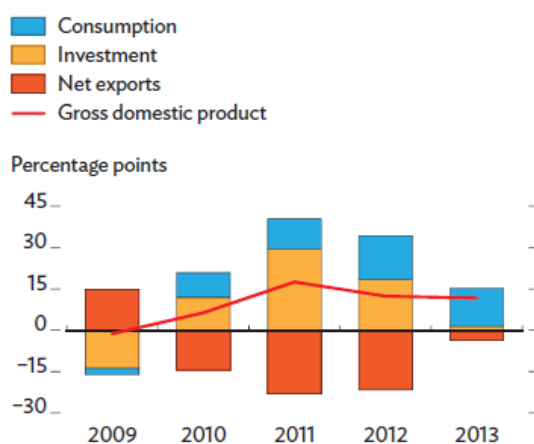
In 2014, GDP of Mongolia is growing at 7.5%, easing from 11.7% in 2013, 12.4% in 2012 and record high in 2011. Recent growth was boosted to some extent by expansionary fiscal and monetary policies to compensate for the marked slowdown in coal exports and mine development financed through FDI, which have been the drivers of growth in recent years (ADB, 2014: p.1). Even if GDP grew by 11.3% to reach 17 trillion MNT in 2013, average income of Mongolians didn't increase that much because the cost of living rose by 10.3% in the same year. It enabled the purchasing power of people to increase by only 1% (Jargalsaikhan, April 2014). Although ADB predicts that Mongolian economy would stabilize in 2015 reaching close to 10% growth, it is still lower than boom year of 2011.

Figure 3.4 Supply-side contributions to growth



Source: ADB, 2014: p.1

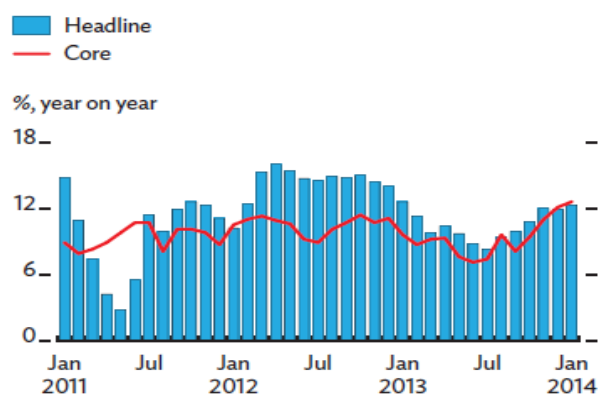
Figure 3.5 Demand-side contributions to growth



Source: ADB, 2014: p.1

Secondly, inflation rate that was targeted not to exceed one-digit number as promised by the government reached 14.7% in the first half of 2014. Rising inflation is driven by current currency depreciation and expansionary fiscal and monetary policies of the government (ADB, 2014: p.1).

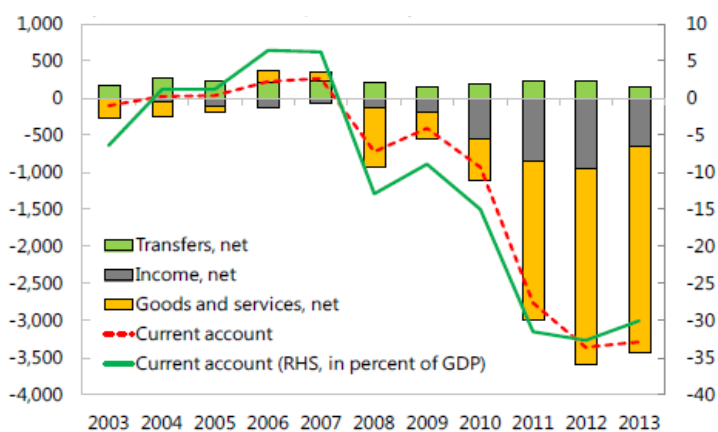
Figure 3.6 Monthly Inflation (in percentage)



Source: Bank of Mongolia, 2014

At third, the current account deficit has grown as big as one-third of GDP even if imports for the FDI-financed OT mine wound down (IMF, 2014: p.5). And, the 12-month trade deficit remains over 2 billion USD (IMF, 2014: p.7).

Figure 3.7 Current Account 2003-2013 (In million USD)

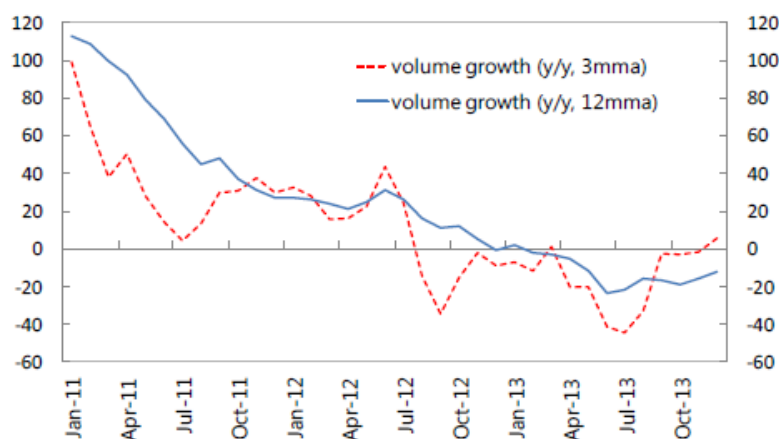


Source: IMF, 2014

Although Mongolia exported a total of 21.1 million ton of coal in 2011, 20.5 million ton in 2012, the country sold overseas 18 million ton of coal, 8 ton of

gold, 645 thousand ton of copper concentrate, and 6.7 million ton of iron ore in 2013. Except for iron ore, Mongolia didn't manage to export as much mineral resource as initially planned (Jargalsaikhan, January 2014). The volume of coal exports declined by 12% in 2013 (IMF, p.4) and coal exports to China plummeted by 40.7% owing to abundant coal supplies there and growing competition from other major coal-exporting countries (ADB, 2014: p.1). Overall export remains weak despite the start of operations of OT open pit mine since exports fell 4.2% in the first 11 months of 2013.

Figure 3.8 Coal Export Volume (change in percent, Jan 2011- Dec 2013)

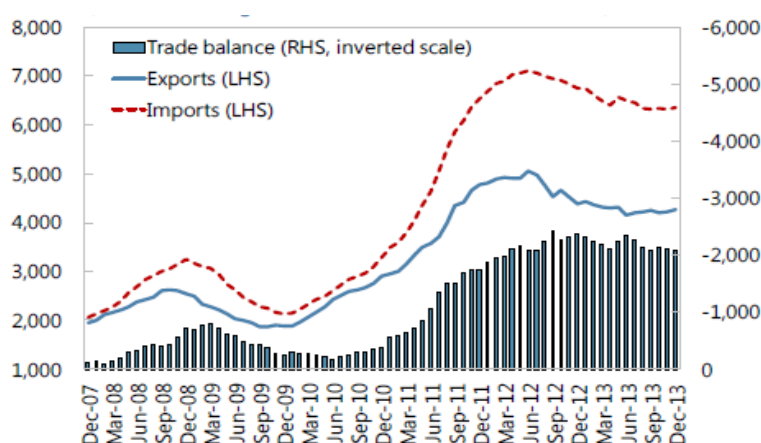


Source: IMF, 2014

The completion of the first phase of OT and a dramatic fall in FDI reduced imports of capital goods, which led a 5.7% drop in imports of goods. Nevertheless, Mongolia's massive import bill reached 6 billion USD last year,

with the country buying 88% of its consumer goods. The nation procures 74% of its dairy products from abroad despite 45 million heads of livestock, alongside 41% of flour-based products and 62% of its textiles and clothing, leading to consistent trade deficit (Paulius Kuncinas, 2014).

Figure 3.9 Trade Balance (in million US\$, Dec 2007-Dec 2013)



Source: IMF, 2014:p.7

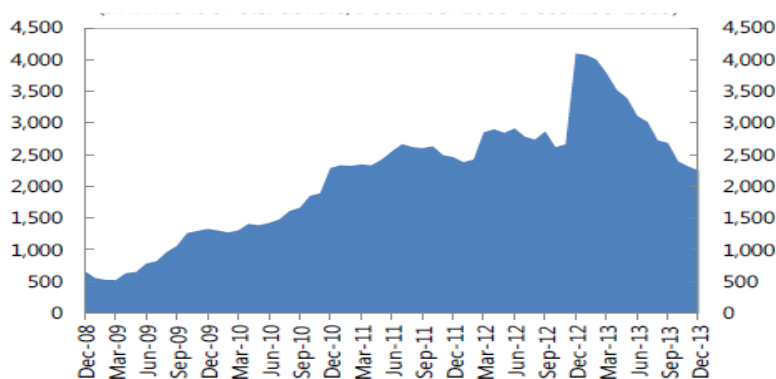
Next, before the 2012 parliamentary elections, the parliament enacted a new law⁸, and because of this foreign investment into Mongolia decelerated exponentially as many investors left the country (Jargalsaikhan, May 2014). FDI plunged by about 55% in 2013 because of uncertainties arising from changes in

⁸ The Parliament enacted Strategic Foreign Investment (SFI) law on May 17, 2012 to regulate foreign investment in business entities operating in Mining, Banking and Finance, and Media, Information and Communication sector. According to the law, if it is above sectors, investors are required to obtain a permit from the Government of Mongolia, and foreign investment agreement made without permission shall be considered null and void (Mongolian Parliament Laws, 2012).

the investment law and slower growth in China, the completion of the first phase of OT, and delays in the expected commencement of the mine's second phase (ADB, 2014: p.2). Decline is getting more serious as investment dropped by 65% in the first five months of 2014 (Jargalsaikhan, July 2014).

Moreover, foreign exchange reserves were cut in half within a year, falling to 1.6 billion USD by the end of May 2014, which is a decrease of 52.6% from the previous year (Jargalsaikhan, July 2014). Two analysts from Morgan Stanley financial services cooperation, Desmond Lee and Gaurav Singhal, cautioned that if foreign reserves continue to decline for a few more months, Mongolia will approach a point at which only two months' imports are covered (ADB, 2014). It has other side-effects as well, such as some companies squeezed their operations while road and other construction projects have been suspended.

Figure 3.10 Gross International Reserves (In million US\$, Dec 2008- Dec 2013)



Source: IMF, 2014: p.5

Another concerning point dragging down Mongolian economy is its increasing debt. The ratio of the total amount of debt (USD 10.9 billion) to the GNI (USD 14.1 billion as the sum of GDP USD 8.5 billion + USD 277 million transferred from abroad + USD 5.3 billion FDI) is 77%. And, the ratio to export income, which was USD 3.8 billion, is 300%. When compared to average developing country, it is three times higher than the GNI and four times higher than the export income (Jargalsaikhan, October 2012). Despite the decline in FDI and exports, the government continues drafting high-cost infrastructure projects, further creating enormous debt load. The Development Bank of Mongolia⁹ (DBM) has been financing majority of those projects through the proceeds from the Chinggis bond¹⁰, \$580 million euro bond issued in 2012, and the \$290 million (30 billion yen) samurai bond issued in December 2013 (ADB, 2014: p.2). Bond issuance sounds very fancy term and somehow indicates that the country is developing more rapidly, but it's a loan acquired by the government and the government must make a coupon payment until it pays back the principal amount.

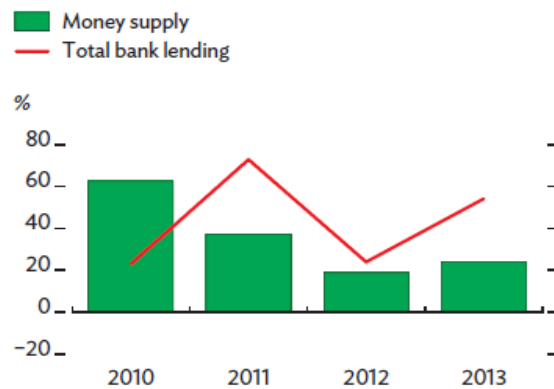
⁹ DBM was established on May 12, 2011. It will issue securities guaranteed by the government to raise capital and with that capital, it will finance large projects that will develop infrastructure, increase living standards, and produce value-added export goods (Info Mongolia, May 2011).

¹⁰ The government first issued the Chinggis Bonds worth 1.5 billion USD with the condition that they must be fully paid back in two parts in five and ten years. The coupon payment for its USD 500 million, five-year bond is 4.125% a year while its USD one billion, 10-year bond is sold at 5.125%.

Through the issuance, Mongolia has to pay an extra USD 196,000 daily, and to cover the full debt it will have to pay USD 1.5 billion altogether with the coupon payments valued at USD 605 million (Jargalsaikhan, May 2014). These days, questions have also surrounded a 10-year Samurai bond. Thanks to a 90% guarantee by the JBIC, borrowing costs were low, with the note's coupon set at 1.52%. But, in December 2013 the Financial Times pointed out so-called Samurai bond would likely run up against the country's borrowing limit (Oxford Business Group, 2014).

Furthermore, the BOM cut the policy rate three times in 2013 by a total of 275 basis points until 10.5% to moderate the impact of declining FDI and boost credit growth, injecting liquidity equal to 17.1% of GDP. Bank credit increased as a result by 41% year on year in 2013 and by 54.3% to January 2014 (ADB, 2014: p.2). This kind of more lending might increase economic activity, but it will increase inflation again due to more circulation of money in the market and create bigger bubble.

Figure 3.11 Money supply and total bank lending



Source: Bank of Mongolia, 2014

Lastly, Moody's, the credit rating agency, downgraded Mongolia's sovereign rating from B1 to B2, negatively influencing the attitude of investors (Jargalsaikhan, July 2014). Fitch, another international ratings agency, revised Mongolia's outlook from stable to negative, and both the WB and IMF have cautioned the government in recent months that its expansionary fiscal and monetary policies could threaten the stability of the economy and don't fit the real situation of declining income and investment inflow (Oxford Business Group, 2014).

3.3.2 Symptoms of Dutch Disease are evident

Mongolia is likely to get afflicted by symptoms of Dutch disease¹¹ to great extent.

Its structure of production has evolved in a way that has increased its dependence on ores and metals. The share of total merchandise exports held by primary commodities increased from 67% in 1992 to 87% in 2005, whereas the share of manufactured exports dropped from 33% to 13%. These trends reflected favorable commodity prices and the decline in the prices of manufactured goods and suggested that Mongolia grew successfully by increasing its specialization in products in which it has a comparative advantage. However, as a result 1) Mongolia's economy has become more vulnerable to terms-of-trade shocks, natural disaster, and environmental degradation; 2) Mongolian manufacturing firms have become less internationally competitive; and 3) Mongolia uses a scarce resource- its labor- rather inefficiently. All above are possible characteristics of Dutch Disease (Ariunaa.Kh&Hong-Jin Kim, p.5).

¹¹ Dutch disease is the appreciation of a country's real exchange rate caused by the sharp rise in exports and the tendency of a booming resource sector to draw capital and labor away from a country's manufacturing and agricultural sectors, which can lead to a decline in exports of other goods and inflate the cost of non-tradable goods. Real appreciation of currency from resource boom can negatively affect competitiveness of the tradable sectors (non-resource manufacturing and agriculture) and change composition of output by raising the share of non-tradables in the total output and employment (Ariunaa.Kh&Hong-Jin Kim: 2).

More specifically, serious symptoms justifying the emergence of Dutch Disease can be proven with following points:

1. Deterioration in the non-mining tradable sector and expansion in the

mining sector; The share of mining currently stands at about 30% of GDP and 90% of exports, but the WB predicts that by 2016, when OT becomes fully operational, the mining sector contribution to GDP and exports will rise to more than 50% and 95% respectively (Kristyna Pelikanova, 2013). This emphasis on mining sector de-industrializes the country.

2. Government Expenditures; With real appreciation of the currency and inflow of foreign funds through FDI or bond issuance, the government went on spending spree by giving out cash to the citizens to keep their election promise, financing a big scope of unsystematic infrastructure projects, increasing the overall wage, and embezzling activities worsening corruption issue etc. After all, it led to surging inflation, debt, and chaos.

3. Appreciation of the real exchange rate; It makes the country's other products less price competitive on the export market and leads to higher levels of cheap imports, leading to deindustrialization. Although the currency is becoming weaker these days because unpredictable investment environment

slows inward investment, Mongolia already observed this appreciating trend.

In 2010, MNT became the second best performing currency in the world. This pattern continued also in the boom year of 2011.

4. Increase in the price of non-traded goods such as services and real estate;

With great inflow of foreign funds and windfall profit from mining sector, bubble got created in the economy. With a prediction that profit will increase exponentially, bubble gets bigger inflating prices of services and real estate among all.

The symptoms become serious with persistent unemployment, widening income gap, and high poverty rate without quality growth, all of which point out that Mongolia isn't able to develop sustainably and grow in real terms if it continues focusing on mining sector and ignoring other revenue-creating industries.

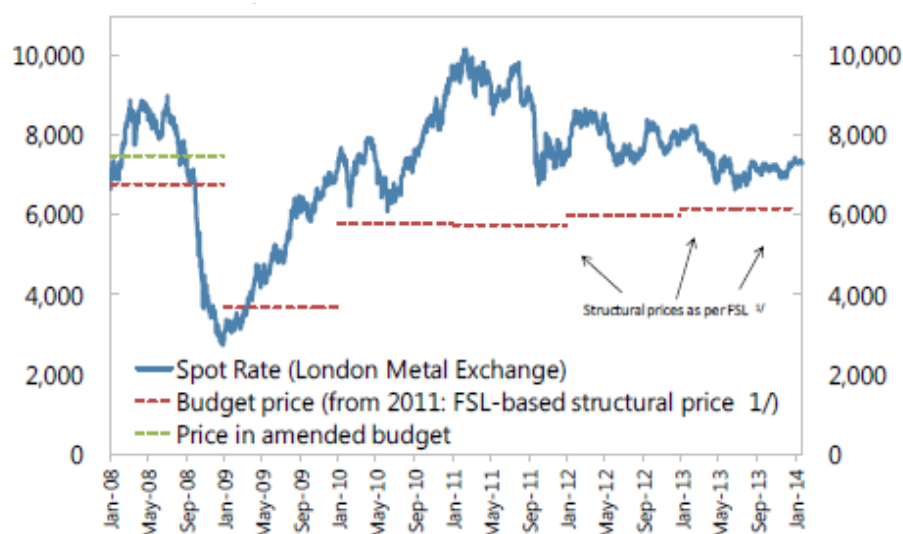
3.3.3 Other issues arising from overdependence on mining

Mongolia has a weak economy since it is dependent on its two neighbors for trade. China receives more than 90% of Mongolia's exports, mostly minerals and metals, that means when China's demand gets smaller for different reasons, economy will come to standstill. And, it buys 95% of its fuel from Russia. When

Russia increases its price and imposes quota and other pressures, Mongolian economy gets into serious inflation and related crises. In order to export mineral resources, the country has to use one of its neighbors' seaports as it is a landlocked country. There are 2 possible choices, the port of Vladivostok in Russia or the port of Tianjin in China. However, the optimal choice would be the port of Tianjin because the other freezes during the winter time, which means it is impossible to export throughout the whole year. So, Mongolia might be more reliant on China. Also, according to the statistics of 2012, China was the largest investor and accounted for 89% of Mongolia's total export.

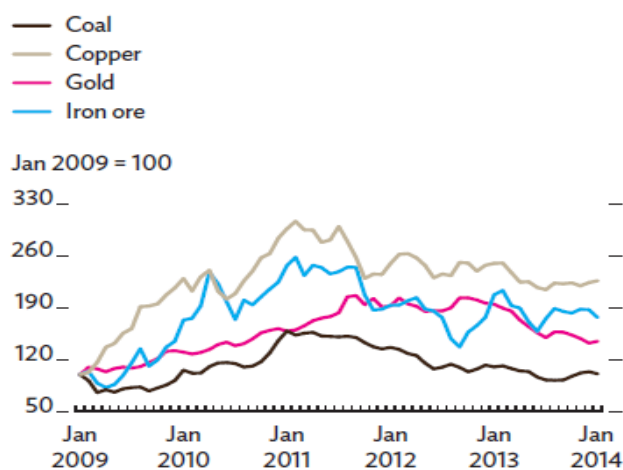
Another point is the business cycle of Mongolia has been almost wholly determined by the mineral demand of its main trading partners and the prices of mineral commodities, making the country weak against external shocks. For example, international copper prices declined by 8% in 2013 (IMF, 2014: p.4) and prices of other main export products also declined in real terms, making GNI lower and triggering related problems.

Figure 3.12 International Copper Price (US\$/ metric ton, Jan 2008-Jan 2014)



Source: IMF, 2014

Figure 3.13 Global prices of main exports



Source: ADB, 2014: p.4

Not only prices of exports, but also stock prices of three mining companies operating in Mongolia, namely Mongolian Mining Corporation,

Turquoise Hill, and South Gobi, collapsed in 2013 due to uncertain government regulation and overall economic downturn. Majority of public funding, budget, and financing of projects come from the yields of these company stocks and increasing price, but if it goes down further, Mongolian economy will have to ground hard.

Lastly, dominant mining sector activities pose negative impact on Mongolian wilderness and environment, by which the country has attracted tourists and earned substantial profit. Mine sites that hardly carry out rehabilitation work caused water, air, and soil pollution, dust, species migration, loss of biodiversity, and so on. Many of them also dump their wastes in the surrounding rivers and lakes, triggering health issues at the same time.

From all these problems arising from mining sector expansion and current economic situation, it is rational to diversify the economy into other tradable sectors, at which Mongolia has potential and capability.

3.4 Current cluster development of Mongolia

As it's introduced in the Figure 2.1- California Wine Cluster (p.19 of the thesis), we saw how well-developed clusters exist in close connection and cooperation with various suppliers and related and supporting entities. California

Wine Cluster is made up of hundreds of commercial wineries, independent wine grape growers, and suppliers of grape stock, equipment, and other raw materials. Along with wine-related bodies, PR and advertising firms, educational institutions for R&D and other local clusters in agriculture, food and restaurants, and tourism contribute to its further growth (Michael Porter, 1998: p.78).

Unlike above, Mongolia doesn't have well-developed cluster system and mechanism. On the outskirts of Ulaanbaatar city, there is an agglomeration of around 60 small hide and leather factories that produce raw materials and final goods; however there is very weak coordination among those firms (they operate separately). There are some mining complexes that could be identified as low-developed clusters but since they are state owned, supporting industries and services are not in existence (ADB cluster, 2004, p.16).

The Government of Mongolia approved the National One-Village One-Product Program in 2005 and established the OVOP Council. The initiative is to assist regional communities in identifying local products that are universally marketable and have greater export potential. It assumes potential clustering of enterprises both industrially and geographically (Mungunbat Sharav, 2007: p.10), but it is not the same as developing pure cluster. In connection with above, UNDP

in collaboration with the Ministry of Industry and Trade of Mongolia (former) continued EMP-Phase Two in 2008 with support of the Government of Japan (UNDP, 2013:p.4); within this framework, they implemented Local Cluster Development Initiative (LCDI) to support small and micro producers and entrepreneurs to make their products for the local market and improve livelihoods of local communities. A total of 22 business clusters were identified in four provinces under cluster development approach (UNDP, 2013: p.11). EMP-2 made possible the creation of 273 jobs in target provinces and the production and marketing of 15 new value-added products (UNDP, 2013:p.6). However, after the implementation period ended in 2013, cluster activities became weaker, operation of the businesses faced many issues due to termination of funding, and spillover effect was negligible as the project was implemented in few local areas. Since clusters were established through the fixed period project, there weren't many physical establishments that could attract other SMEs and channel to bigger developments.

Figure 2.2- Cluster Development Flowchart (p.25 of the thesis) explains through which process and initiation the cluster comes into being. It is undertaken with careful planning and various trials and errors. After assessing the potential of

cluster in a certain strategic place, many different examinations are taken just to finally identify the industry to be developed through cluster approach. Then, not only local stakeholders but also other external parties interact and closely communicate to plan the initiation and carry out further processes under prudent rules of engagement.

If it is real cluster development with step-by-step process, Mongolia is just in the 1st stage of assessing the potential or in the process of studying about cluster and proposing some ideas and projects. Current government hasn't yet taken any tangible measures in raising competitiveness of Mongolia in the long-term and considering next stages of cluster development. NDIC succeeded in getting the Parliament's approval for a policy on the high technology industry. As results, the government approved a midterm strategy including key policy decisions on competitiveness and innovation in the spring of 2011 after adopting Law on Innovation. The Cabinet and the Ministry of Food, Agriculture, and Light Industry (MOFALI) with assistance of Mongolian National University developed a concept note for creating a livestock cluster complex, which complements the Mongolian livestock program that Parliament approved until 2021 (World Bank,

2014: p.4). In 2012, NDIC in collaboration with the MOFALI named 5 clusters and began the research (Mobile Time, Chimeddorj).

Along with it, the Office of Mongolian President, the Ministry of Economic Development, and ADB made feasibility studies on developing sea buckthorn, wool, and tourism cluster etc and came up with the final result in 2013. They concluded that cluster is a key tool in increasing competitiveness through higher productivity, economic growth and export potential of Mongolia. And, they deemed that cluster development is highly possible since Mongolian president has decentralized budget allocation under new budget law, whereby local governments will be able to plan and allocate the budget on their own with participation of the citizens and get an opportunity to establish clusters at local level. The research found the cluster more effective as it will create triple synergy or chain of the government, private sector, and research and education institutions coming up with better measures (President Office of Mongolia, 2013).

The Union of Mongolian National Consulting Specialists started implementing a project supporting cluster development with technical assistance of ADB. In addition, USAID and GTZ (German Technical Cooperation) are each implementing one project on cluster development. But, all of them are to find out

possibilities and opportunities to establish cluster in the near future (Mobile Time, Chimeddorj).

Recent effort in developing cluster-like system in Mongolia is Sainshand Industrial Park. The main objective is to process mineral resources of Mongolia then export value-added products. Following Process Units are envisioned to be built in the complex and the work has already started: Cement Plant, Coke Plant, Iron Pellets Plant, Coal Gasification Plant, Oil Refinery, Copper Smelter, and Power Plant (Ganbat, 2010: p.15). Within the establishment, there will be around 2300 employees, different malls, residents` housing unit, 7 clinics and 1 hospital, 7 schools and 5 kindergartens, 2 libraries, 5 recreational centers, and 3 government offices with police station, fire station, and post office constructed (Ganbat, 2010: p.15). In order to export value-added products from the complex, current railway crossing the site will be extended and renovated. So, in the future, it is designed to become a whole city. Plus, it is being created through PPP. Although this huge complex will look like a cluster, it is still mining-based cluster expanding the weight of mining sector in the economy.

From here, it is obvious that if it is tangible efforts in creating clusters, most of them are on innovation-based ICT clusters or at simple research stage.

There is no effectively ongoing initiative on certain cluster; rather an embryonic signs of clustering exist. Before the 1990s, centrally-planned Mongolia had also implemented cluster-like projects with 100% state involvement (refer to details in annex for Chapter 3, pp.152-154). Nevertheless, due to less capacity and efficiency, lack of technology and innovation of relatively closed communist era, the products from those industrial units weren't competitive enough; hence resulting in mediocre quality and performance and bringing in small amount of foreign currency. Since main actors of those cluster-like units were separately operating by only focusing on state orders and fulfilling the government objective, they all disappeared with the collapse of socialist regime. Even during its existence, it couldn't trigger various advantages that could diversify the economy in an effective manner. As both previous and current experiences that are little closer to cluster haven't led to good results and eventual economic diversification, the government is now aware that Mongolia needs to develop specific strategies to diversify the economy and take real actions towards cluster development instead of just discussing and preparing policy papers.

CHAPTER FOUR

4. ANALYSIS OF INTERVIEW FINDINGS AND PRESENTATION OF RESULTS

4.1 Introduction

In-depth study of Chapter 3 clearly shows that Mongolian economy with a strong emphasis on mining causes interrelated economic problems. For the reality check the researcher decided to carry out interview from experts who are supposed to have a good knowledge and information on the real situation of economy. In addition, information on current cluster development from Chapter 3 reveals that there was no pure cluster that has a capacity to diversify economy in Mongolia and the country still doesn't have ongoing project or official strategy for cluster. So, the interview is also to find out a competitive sector, which could be developed through cluster approach, and possible location to start the project. This chapter intends to analyze findings of the interview and elaborates main points that determine a potential cluster for Mongolia.

4.2 Interview

The interview was conducted through using 11 open-ended questions (attached in the annex for Chapter 4) for which answers were not limited to one

response. This means of collecting information to achieve research objectives was very effective since questions covering a broad area were asked from leading experts. The researcher took the interview from 22 people or from following target groups, which are coded with letters:

1. Government Group – Code G

2. NGOs Group – Code N

3. Academia Group- Code A

After conducting interviews and taking memo, the data was deeply analyzed and transcribed into texts. Then, the transcription was reviewed and the data was coded into categories and themes. The researcher herself translated results of the interview from Mongolian into English to display in the paper.

In the next part, translation of the key findings will be presented. Some information from the interview is used throughout the research and for developing conclusion and recommendations.

4.2.1 Interview Results and Findings

Current Mongolian economy is not healthy

Mongolia is becoming more dependent on mineral resources and exploiting them to a level that degrades environment and ecological balance. The

country earns thousands of dollars as revenue from export, but the prices of major consumer products are continually increasing. Benefit is reaching only to those people at the top, widening gap between the rich and the poor and worsening corruption. Nowadays, situation like bubble exists in Mongolia (Code A1¹²).

While WB and ADB have reported that GDP growth of Mongolia has dipped down to about 6% in 2014, Bank of Mongolia indicates only 3.6% growth. According to the Bank, internal and external imbalances are the cause. For example, FDI declined by 70%, suspending the financing of OT project, creating balance of payment issues, and leading to drop in reserve money. It is coupled with lower price for Mongolian coal (\$30 per ton against \$62.90 per ton of international market price) and not that strong demand from China. In addition, domestic demand slides down due to high inflation and MNT depreciation. Since all these scenarios are interrelated, the government is facing a hard time to solve them (Code G2¹³).

Any country can specialize in one sector and gain much from it; unfortunately, that policy isn't sustainable and beneficial in the long-run. If we

¹² Interview with Khishgee.D (Mar 5th, 2014), Senior Professor at Economics Department, School of Economics- National University of Mongolia

¹³ Interview with Davaasambuu Erdenebayar (Feb 28th, 2014), Department Head at the Ministry of Economic Development of Mongolia

look at different resource-rich countries, the ones that developed only one sector have failed whereas the ones that deployed several promising sectors with the help of resource revenue have succeeded to a great extent. Thus, mining-based advancement is not the key to development. Even current situation indicates a danger and reminds Mongolia to take wise policies. Although coal export from TT hasn't declined, overall price is going down and China's supply from domestic source and different countries has increased. Thus, Mongolian companies are exporting without much profit margin. And, Mongolia is losing its attractiveness because of high competition. So, it's hard to see bright light in the future (Code N1¹⁴).

FDI has been infused into one or two big mining deposits for the past few years, but these projects can't carry the entire economy on their back. Many parts of the investment become future debt, yet we are already struggling with coupon payment of government bonds. Since FDI trend isn't recovering back to its previous trend, further dependence on mining is not smart solution (Code N3¹⁵).

Economic Diversification or Emphasis on Mining through wise management

¹⁴ Interview with Amar.D (Mar 11th, 2014), officer at MDRC

¹⁵ Interview with Lhagva.S (Mar 11th, 2014), senior officer at MDRC

If Mongolia were still in 2011, maybe it could focus more on mining sector. However, current Mongolian economy has become very weak, relying on the faith of OT and TT. Since the country can't get much profit from its coal and other minerals' export, it is lack of foreign currency to pay for the imports. Capitalizing on one sector especially extractive industry isn't good as the country becomes vulnerable to change in commodity prices and demand. So, there is an urgent need for diversification and develop multi-pillar economy (Code G5¹⁶).

When mining was in its high boom, MNT got very strong. Thanks to it, Mongolia could pay for import products and use them to develop mining projects; now the currency is becoming weaker making the imports very expensive. Here you might say that export could benefit and become advantageous with depreciation, but can Mongolia, which imports most of its necessity, sell diverse products that are competitive? Almost no. That's why it's rational to diversify the economy and create competitive products for export. If we look at the experience of land-locked and small countries, they have developed several sectors; so that when one sector goes down, the other ones can support the economy. Also,

¹⁶ Interview with Altangerel.Ya (Mar 3rd, 2014), Senior specialist of intensive husbandry- The Ministry of Industry and Agriculture

diversification will create more stable jobs that is essential for Mongolian economy like water and air as mining provides fewer jobs (Code A2¹⁷).

The most appropriate sectors for diversification

In order to diversify the economy, Mongolia needs to choose other competitive sectors. What we have at our disposal now is animal husbandry, which is Mongolian traditional sector. Particularly, given the increasing number of livestock, we could develop cashmere and meat industries since their resource depends on the number of livestock. It is reality that meat industry is operating at about 10% capacity and cashmere factories are at around 20% while their total exports are 19.7% of its overall capacity. However, if the country puts more effort in supporting them and exporting more value-added quality products, they could bring huge revenue to the state budget (Code G6¹⁸).

Mongolia should develop its livestock-based sector at which we have an experience. For example, cashmere is the first sector to develop as it is the 2nd biggest export sector after mining, yet it is running under its capacity. Cashmere companies are getting better as many of them have changed their outdated

¹⁷ Interview with Battulga.S (Mar 5th, 2014), Professor at Economics Department, School of Economics- National University of Mongolia

¹⁸ Interview with Nyamdorj.N (Mar 3rd, 2014), Specialist in charge of Innovation and Program to Industrialize Mongolia- The Ministry of Industry and Agriculture

technology and equipment. But, we have to show advantages of Mongolian cashmere and make a brand; then it will be possible to generate more profit from value addition. Next, we could promote our meat and dairy products, making them as a good quality export product. Food is a good export as it is always in demand. Even countries surrounding Mongolia such as China and Russia have a good demand for lamb and beef. But, we need to improve the standards and quality to meet their safety requirement (Code A4¹⁹).

The most promising sector for now is cashmere as Mongolia already has a good foundation and there will be more buyers of cashmere in other countries thanks to increasing middle class. Even if there are many SMEs that specialize in cashmere production, they run under capacity due to financing problem and lack of expertise etc. As all of them operate separately just to meet their costs, the industry can't further grow. So, we need to tackle it. Meat industry is considered to be less competitive because between 85% and 95% of Mongolia's annual meat production is consumed domestically, and herders transport animals on a long way to reach the market and make them stressed that negatively affects the meat

¹⁹ Interview with Tsolmon.Ts (Mar 5th, 2014), Professor at Department of Marketing and International Trade, The School of Economics- National University of Mongolia

quality. Plus, meat is exported in bulk making the export cost expensive, and doesn't fetch a high price per unit like cashmere (Code G1²⁰).

Possibility of utilizing cluster to diversify the economy

Although not all Mongolians might not be familiar with the term, government agencies and state organizations have been talking of developing cluster for some time as many countries have benefited from it. It hasn't yet come into reality. Government has made a wide range of discussions on creating agricultural clusters, technology cluster, and so on. In that sense, we have been studying successful models and aiming to apply them to Mongolia in the future (Code G7²¹).

Mongolia is still a developing country, and once economic growth reaches the low class and their living standard improves, we can call it economic development. If we want to bring healthy development, we must diversify the economy. Cluster is crucial and efficient system to make improvement at all levels. For example, developing meat industry itself will increase employment for sure, but it will improve the living of fewer people while related and supporting

²⁰ Interview with Nyamushka Gurgemjav (Feb 28th, 2014), Officer at Ministry of Economic Development of Mongolia

²¹ Interview with Enkhtaivan.M (Feb 19th, 2014), the head of the information, research, monitoring and evaluation division at NDIC

industries within the cluster will make more employment and bring a wide-scope impact. It has passed many years since Mongolia chose market economy, and it is open to international market. At the same time, it's trying to create a favorable legal environment. Since the parliament enacted PPP concessions law in 2010, 114 projects have been nominated for implementation. Thus, it is possible to utilize cluster under PPP concept to diversify the economy. Plus, good news is recent visit of Chinese president to Mongolia led to several agreements allowing Mongolia to use 8 ports of China for its export. If we establish cluster and produce final goods for export, we're getting close to accessing international markets much easier and faster. The most crucial thing that Mongolia should consider is future cluster must be export-oriented because domestic small market can't generate much profit. Tapping export market is the gateway (Code G2²²).

Cluster approach is suitable in Mongolia

Since Mongolia is a big country with small population, majority of the people are concentrated in few cities and provinces. When producers make final goods and sell them in different places, it takes much time for transportation thereby worsening the quality and increasing the cost. For instance, in order to sell

²² Interview with Davaasambuu Erdenebayar (Feb 28th, 2014), Department Head at the Ministry of Economic Development of Mongolia

their livestock to butcher house and meat in central areas, herders transport the livestock on long path; then the livestock gets into stress and meat yield gets lower. However, if we could develop cluster, there is no need to transport on a long way because related and supporting industries will evolve and markets will become closer. Thus, cluster approach is suitable and advantageous in Mongolia. One thing we have to keep in mind is domestic market of Mongolia is small, so we need to get into competitive international market (export) by capitalizing on agricultural clusters like cashmere, meat, and milk (Code G6²³).

The challenges for developing clusters

The policy of cluster must evolve in connection and relation with economic, industrial, infrastructure, labor, educational, R&D, and innovation policies. But, in the case of Mongolia these policies are pursued separately and this is one shortcoming to implement cluster approach (Code A3²⁴).

Cashmere and meat processing factories don't have structured organization as they operate just to cover their costs. Suppliers of raw materials, small local factories, cooperatives, collectives, private enterprises, processing

²³ Interview with Nyamdorj.N (Mar 3rd, 2014), Specialist in charge of Innovation and Program to Industrialize Mongolia- The Ministry of Industry and Agriculture

²⁴ Interview with Batnasan.N (Feb 20th, 2014), Professor at Department of Marketing and International Trade, the School of Economics- National University of Mongolia

plants, final good producers, importers, science and research institutions, and related universities carry on their activities separately and without integrated policy; thus it hinders the development of mutually supporting sector and the creation of value chain (Code N5²⁵).

Cluster is well developed on the basis of good infrastructure, but overall infrastructure and logistics development in Mongolia is weak. Although the country planned big-scale projects with revenue from mining and bond issuance, current economic downturn has suspended some of them. Since cluster requires huge funding, Mongolia faces a chain of problems. This is another challenge (Code G7²⁶).

Lastly, financial and technical support from the government is low in Mongolia comparing to other countries as it doesn't even reach 1% of total public expenditure. As because creating a cluster requires state funding to some extent, current allocation can't contribute to cluster development (Code N3²⁷).

Actions to promote cluster development

²⁵ Interview with Yanjindulam (Mar 7th, 2014), Erdenet Cashmere- Mongolian Wool and Cashmere Association

²⁶ Interview with Enkhtaivan.M (Feb 19th, 2014), the head of the information, research, monitoring and evaluation division at NDIC

²⁷ Interview with Lhagva.S (Mar 11th, 2014), senior officer at MDRC

In order to establish cluster and further become competitive, Mongolia should improve underlying fields as a basis by undertaking scientific and technological development and engaging in innovative activities. More specifically, following measures should be taken to develop cluster: Enact a law on cluster, establish a national cluster committee, invite private sector and related and supporting entities into cluster initiative (R&D firms, educational institutions, effective stock market for agricultural raw materials, herders, cooperatives, logistic companies etc), support SMEs that want to participate in clusters with deliberate policies and incentives, and develop national cluster program, and promote value chain and information network. Also, the general public is lack of information and knowledge on the concept of cluster and how it affects and supports economic growth and efficiency, so we have to raise awareness and educate the people in the due field. Preparing the human resource and specialists must go hand in hand (Code N3²⁸).

The government should support industries like cashmere and meat by providing low-interest loans to SMEs, then we need to create brand products pointing out the advantage of Mongolian livestock that thrive on natural pasture.

²⁸ Interview with Lhagva.S (Mar 11th, 2014), senior officer at MDRC

Then, it should make an effort in attracting domestic and foreign investors in creating cluster. For instance, through inter-government agreement of Mongolia and China, China decided to provide a long-term loan for constructing over 10 meat factories that would start to get implemented since 2013. However, it hasn't become a real action yet, so Mongolia could take advantage from it and allocate the fund in developing meat cluster (Code A4²⁹).

Better location for potential cluster

For developing country like Mongolia, it's crucial to identify the location of cluster based on such attributes as current infrastructure development, industrialization level, proximity to the bigger markets, and supply for raw materials and resources. As Mongolia currently has some advantages in animal husbandry sector, it's better to look to provinces that have more numbers of livestock considering for stable supply. Arkhangai, Khuvsgul, Tuv, Uvurkhangai, and Bayankhongor provinces take top positions almost every year in terms of the number of livestock. That's why, for example, Arkhangai produces more

²⁹ Interview with Tsolmon.Ts (Mar 5th, 2014), Professor at Department of Marketing and International Trade, The School of Economics- National University of Mongolia

milk-based dairy products in Mongolia while Bayankhongor has more cashmere and wool yields etc (Code G2³⁰).

Figure 4.1 Provinces of Mongolia, Administrative subdivision



Source: Trip Mongolia

Major processing industries and factories of Mongolia are concentrated in the capital city, worsening the congestion and pollution and drawing other urban issues. But, if it's raw and by-products of livestock for further processing, the supply is provided from other provinces. This supply and value-chain lessen overall efficiency. Thus, it is better to create clusters in relatively developed provinces that have better infrastructure and capacity; so that decentralization can also be undertaken sharing the burden of the capital city. Also, that province

³⁰ Interview with Davaasambuu Erdenebayar (Feb 28th, 2014), Department Head at the Ministry of Economic Development of Mongolia

should have certain capacity to supply resources. Not only me, but also many experts of Mongolia believe that Tuv province can become a strategic place to initiate cluster project because it's only about 40 km away from the capital city, which is the biggest domestic market, it's connected to stable electricity and power supply and linked with other provinces and cities through hard-paved roads. Moreover, new international airport, which will be completed in 2015 and become the biggest international hub airport in Mongolia, is being built in this province. After the airport starts operating, it will be lot easier to export final goods to foreign destinations (Code G1³¹).

If various animal husbandry clusters get developed and concentrated in few provinces that have more livestock, real efficiency could be promoted. In the case of Mongolia, raw materials supplied from other regions except the capital city are transported to Ulaanbaatar and turned into final products. But, the country itself is very big and much time and resources are wasted only for transport. Keeping infrastructure, raw materials, and general provincial development in

³¹ Interview with Nyamushka Gurgemjav (Feb 28th, 2014), Officer at the Ministry of Economic Development of Mongolia

mind, Bayankhongor and Uvurkhangai, and Tuv provinces could become a good location in terms of cashmere and wool cluster (Code N5³²).

To conclude this chapter, all of the interviewees echoed the observation the researcher made in earlier chapter regarding Mongolian economy and emphasized the significance of cluster approach for economic diversification. They chose animal husbandry and agriculture to create cluster. More specifically, all experts pointed out cashmere as more competitive and potential sector under cluster development, but it should be deployed through exported-oriented strategy. In addition, interviewees expressed their opinion on cluster location and gave their reasoning. According to them, Arkhangai, Khuvsgul, Tuv, Uvurkhangai, and Bayankhongor provinces could play as strategic locations as they are favorable to stable raw materials` supply, close to the main markets, and have better infrastructure development.

³² Interview with Yanjindulam (Mar 7th, 2014), Erdenet Cashmere- Mongolian Wool and Cashmere Association

CHAPTER FIVE

5. CASE STUDY ON CHILE'S WINE CLUSTER

5.1 Introduction

As Chapter 4 concluded cluster as a suitable method to diversify Mongolian economy, the researcher wanted to verify if cluster approach can benefit resource-rich countries like Mongolia. After doing a lot of study, the researcher chose Chile as a case study to examine whether cluster-based initiatives helped the country diversify its economy.

5.2 Why was Chile chosen for case study?

Figure 5.1 Map of Chile



Source: Lonely Planet, 2014

The Republic of Chile is located in South America bordering with Bolivia and Argentina. It is about 2880 miles long with a land mass of 756.102 sq.km. The country's population is estimated at 16.746.491, and has a growth rate of 0.856% (Robert Kennedy College, 2010: p.5). Chile's economy grew enormously due to its exploitation of big copper mines becoming the major impetus to country's development. Because mining brings windfall profit as far as commodity price stays high, the government put all its effort in deploying the sector to the forefront paying less attention on the other sectors of the economy. In this sense, current development pattern of Mongolia is similar. Chile is the world's largest producer of copper supplying 35% of world copper (Jose Pablo Arellano, 2012: p.5). It also has a huge reserve of molybdenum, rhenium, silver, gold, iron, natural nitrates and others. The country is vulnerable to the same shocks as Mongolia, especially volatility in copper prices, and subject to similar Dutch disease pressures arising from a booming minerals sector. In Chile, the share of copper revenues in total fiscal revenues rose from about 5% of the total to about 24% in the late 2000s, and dominant part of Chile's export was dependent on copper (Rogier van den Brink et al., 2012: p.3).

But unlike Mongolia, Chile had adopted strict fiscal rules and

institutional frameworks, through which the country went into a mechanism of saving more when the copper price is in surge and creating rainy day fund to support continued and sustainable spending in periods of low mineral prices or slow growth. Besides, most importantly, it could diversify its economy from mining by developing agricultural clusters particularly wine cluster, for which the country capitalized on its long history of wine making.

Chile started developing its wine industry reflecting on advantages that agricultural clusters could generate. It seemed advantageous for small producers and agribusiness firms; from agglomeration economies to joint-action benefits, such as improving access to local and global markets, promoting local governance, and scaling up and disseminating innovations. Consequently, they could raise the competitive advantage of farmers and agribusiness firms as clusters increase their current productivity and innovative capacity. In addition, clusters attract new agribusiness that supports cluster growth as a whole. Moreover, they can constitute an important tool for the economic and social development of a given territory, furthermore influencing the entire economy in a good way: They have positive impacts on income enhancement, employment generation and well-being

of workers and entrepreneurs of the cluster and, more generally, they offer great potential for creating another supporting pillar of the economy.

As results of developing wine cluster, wine became one of the main export products except copper and brought in huge amount of profit and investment that could be utilized for building more stable economy. For instance, the wine industry continues to be a major source of tax revenue for the government through the Alcohol Law (ILA). In 2009 alone, the Wine ILA generated tax revenues of US\$58 million (Wines of Chile, 2010: p.71). And, Chile could become one of the most dynamic and developed countries in Latin America wisely distributing the wealth of nation to its more capitalizing society. As of 2013, it has GDP per capita of \$15,732, which is the highest in South America (Robert Kennedy College, 2010: p.9). Chile ranked in the 34th place in the Global Competitiveness Index 2013-2014 (World Economic Forum, 2014). According to the index, it is currently in transition from the second to the third and final stage of its development. It is the only Latin American and Caribbean country in the top 30 global performer (Robert Kennedy College, 2010:p.6). Chile has a stable, open, and market oriented economy that is recognized by:

- high level of foreign trade

- strong financial institutions
- sound government macroeconomic policies
- responsible leadership well regarded regionally and internationally

Its well-developed institutions with strong legal framework, efficient regulatory system, and free trade agreements reduces risks and provides a favorable political and economic climate, making Chile attractive to investors worldwide. Foreign investment policies are liberal and open; they facilitate a variety of business opportunities to investors, which in turn provides the needed capital and technology for Chile's economic development (Robert Kennedy College, 2010: p.6). All above favorable business environment combined with cluster-based development makes Chile competitive enough in international market and gives incentive to use its profit from mining in a rational way. Hence, Chile's experience in diversifying its economy through cluster and building a wall against Dutch Disease could serve as a good practice for future development of resource-rich Mongolia.

5.3 Brief History in Wine Making

Spanish conquerors found the ideal place to plant vines in Chile since the local soil was free of phylloxera³³ and the climate allowed a perfect growing season and ripening of the fruit. By mid-19th century, the first major change to Chilean wines began to take hold. The economy- strongly based on agriculture and mining - had evolved greatly. Wealthy businessmen traveled abroad and saw France as a model, where they explored the French wines and châteaux. Then, they imported a selection of the finest rootstocks to Chile but production and export were somewhat limited (Wines of Chile, Heritage&Modernity).

Throughout the 1970s and the 1980s, exports accounted for very little of the production since most of it remained on the domestic market and Latin American wines were largely unknown overseas (Evert-Jan Visser, p.2). But, soon well-known Spanish winemaker Miguel Torres arrived in Chile and started making wines in the Curicó Valley, whereby a new era of winemaking began. He was the first to introduce technologies such as stainless steel tanks and French oak barrels and to transform the vinification processes. Torres' example was soon followed by

³³ Phylloxera is a nearly microscopic root insect that primarily attacks the roots of grape vines, in much the same way an aphid attacks a tomato plant's stems and leaves, by puncturing the vessels and sucking out the plant's sap. Once infested with the Phylloxera louse, the grape vine's root system can become severely impaired, making it difficult for the plant to absorb the needed water and nutrients to sustain a vine (Stacy Slinkard, About Phylloxera).

Chilean winemakers, who started taking “quality over quantity” approach and shifted from bulk wine for the domestic market to premium wines for demanding export markets (Evert-Jan Visser, p.2). This turnaround resulting from foreign investment and effort of domestic producers was supported through government policies and led to steady growth in wine sales abroad and general development of wine cluster as part of diversification measures (Wines of Chile, Heritage&Modernity).

5.4 Cluster Approach for the Development of Chile`s Wine Industry

The biggest source of Chile`s income comes from two copper-producing, state-owned companies - the CODELCO and ENAMI – that reveals hidden instability (Maria Elena Varas, p.3). That`s why, concern of the government had been how to achieve sustainable growth and development in a resource-abundant country.

Historically, Chile focused on import substitution, high levels of state intervention and price controls as an industrial policy and relied on the extractive industries and agriculture (Maria Elena Varas, p.3). However, the policy generated a meager 2.1% average growth from 1934 to 1973. Eventually, the country had a balance of payment crisis together with social and political unrest

that ended in a military coup in 1973. As reversion, pro-market reforms and trade liberalization policies such as tariff reduction, fewer restrictions on FDI, and removal of credit constraints and subsidies were taken up until the 1980s. These reforms gave a vital role to the private sector, but this period still generated low annual growth with great emphasis on mining sector (Maria Elena Varas, pp.5-6). So, Chile moved forward in diversifying the economy based on wine, salmon, and berry clusters, in part propelled by the efforts of Fundación Chile³⁴, a public-private initiative (Maria Elena Varas, p.3). And, government fully supported the objective especially on wine through its open policy, welcoming new foreign entrants such as Baron Philippe de Rothschild (France) and Robert Mondavi (USA). They have an experience and desire to sell premium wine to sophisticated market segments, and associated with local producers. As results, significant tacit knowledge was transferred to rising wine makers of Chile (Rafael Miranda Ayala, p.56).

After the restoration of democracy in 1990, the third set of economic reforms were taken, entailing high levels of growth from huge capital inflows,

³⁴ The mission of Fundación Chile was to find venture capitalists to invest in innovative projects promoting technology transfer and new business models that could help for strengthening clusters (Maria Elena Varas, p.6).

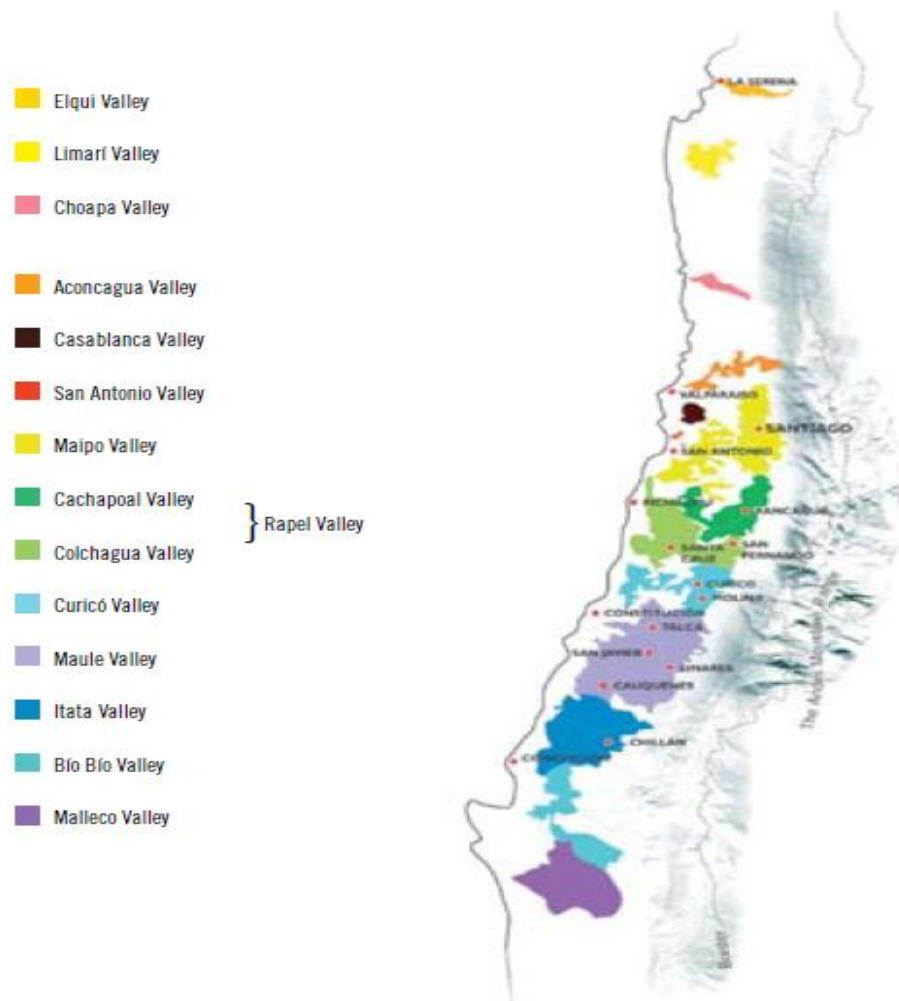
FTAs, important reforms in the financial sector, and better macroeconomic policies. It also generated productivity gains through the implementation of horizontal policies to become an export-led country with strong clusters and gave a crucial role to entrepreneurship and innovation (Maria Elena Varas, p.4). Besides, the National Council on Innovation and Competitiveness (NCIC) was created to implement a new national strategy that would put in place horizontal and vertical policies in pre-defined industry clusters. It identified 11 clusters starting with wine, in which Chile had a competitive advantage based on the following four variables: current importance in GDP; 10-year forecast on the importance a sector might have on GDP; opportunities and challenges that each sector presents (an analysis of geographical location, presence of natural resources, human capital, FDI, access to technology, infrastructure, associability, environmental sustainability, and regulatory framework etc); and degree of state intervention needed to fulfill the sector's potential (Maria Elena Varas, p.16). With a focus on creating higher human capital, the implementation of these policies was mostly funded by copper revenues.

Chile was hardly counted as a wine-producing nation in the first half of the 20th century. In the 1970s and 1980s, wine production was static since exports

were not encouraged and the domestic market remained limited by socioeconomic and political conditions. However, deliberate support of the government in the 1990s and the 2000s to proliferate particularly export clusters went along with FTAs, facilitating access to bigger markets, and led to rapid development of wine cluster and today`s success (Maria Elena Varas, p.9).

Currently, 8000 producers of wine grapes, 300 wine companies, 13946 vineyards, 451 cellars, winemaking, bottling and labeling establishments, 30 industrial wineries with advanced technologies, and 50 medium and small scale wineries both with advanced and traditional technologies are concentrated in the cluster of 14 distinct wine regions (Rafael Miranda Ayala, p.50).

Figure 5.2 Location of Wine Clusters of Chile



Source: Wines of Chile, 2010: p.49

But 72% of the planted surface is located in just two central regions, Maule and Libertador Bernardo (L.B.) O'Higgins, because microclimates and soils are favorable there and labor, product markets, population centers, and ports are close at hand (Evert-Jan Visser and Peter de Langen, 2006: p.7). They are also dominant in terms of production volume. Considering the distribution of wine grape activity at the level of valleys, it was found that the Maule valley (covering

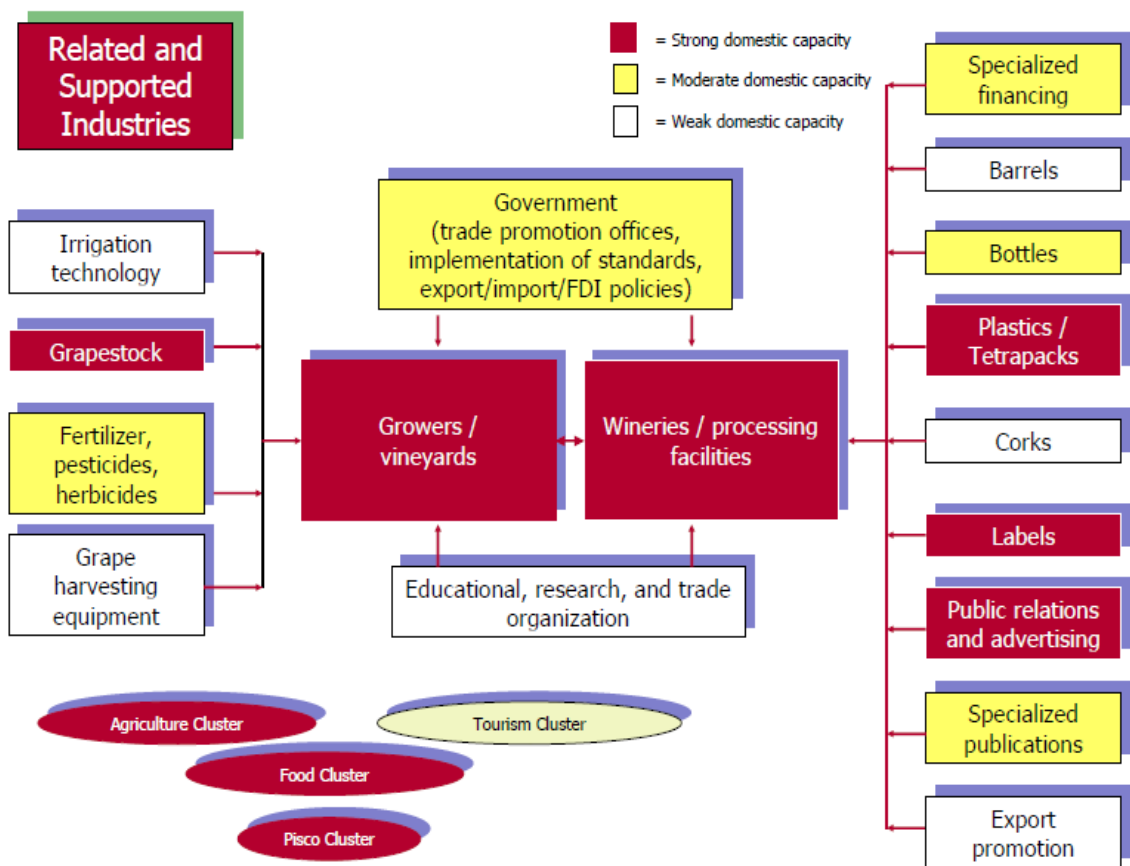
the central and South of the Maule region), the Colchagua valley (in the L.B. O'Higgins region), the Curicó valley (in the Northern part of the Maule region), the Maipo valley (in the Metropolitan region), and the Cachapoal valley (also in L.B. O'Higgins) are good for 95% of the total vine acreage. Some valleys specialize in wine making at the expense of other economic activities (Evert Jan Visser, p.13). Wineries realizing a relatively high sale price for export wines produced in Chile have in common their location, production strategy (small quantities of high-quality wines), and ownership (foreign involvement). Most of the top firms selling expensive in export markets are in these 2 regions as well. In addition, above 5 valleys lodge 78% of the total on the basis of a count of the most traditional vineyard of exporting firms (Evert-Jan Visser, p.18). In 2001, the four largest wineries in Chile in terms of export value held a market share of 33%. These firms were Concha y Toro (14.2%), San Pedro (10.7%), Santa Rita (4.7%), and Santa Carolina (3.9%). Considering the consolidated group figures of these firms, their market share was even larger at 45% (Evert-Jan Visser, p.19). Regional clustering is relevant in the wine industry of Chile.

Further evidence of clustering mostly in above two regions is the concentration of the marketing, administrative, strategic decision making, and

representative functions of the larger wine producers in the capital city of Santiago. The city also accommodates the national wine business associations, two of the three specialized university R&D institutes, public agencies involved in the development of the wine industry, and specialized information brokers. It's the strategic center of a regionally clustered wine industry covering about one-third of Chile. The clusters concentrate on red wines although the Casablanca valley specializes in white wines. The Carmenere grape is important since this variety disappeared in Europe, allowing Chilean wine producers to expand Carmenere production and brand it as typical and premium Chilean wine (Evert-Jan Visser and Peter de Langen, 2006: p.7).

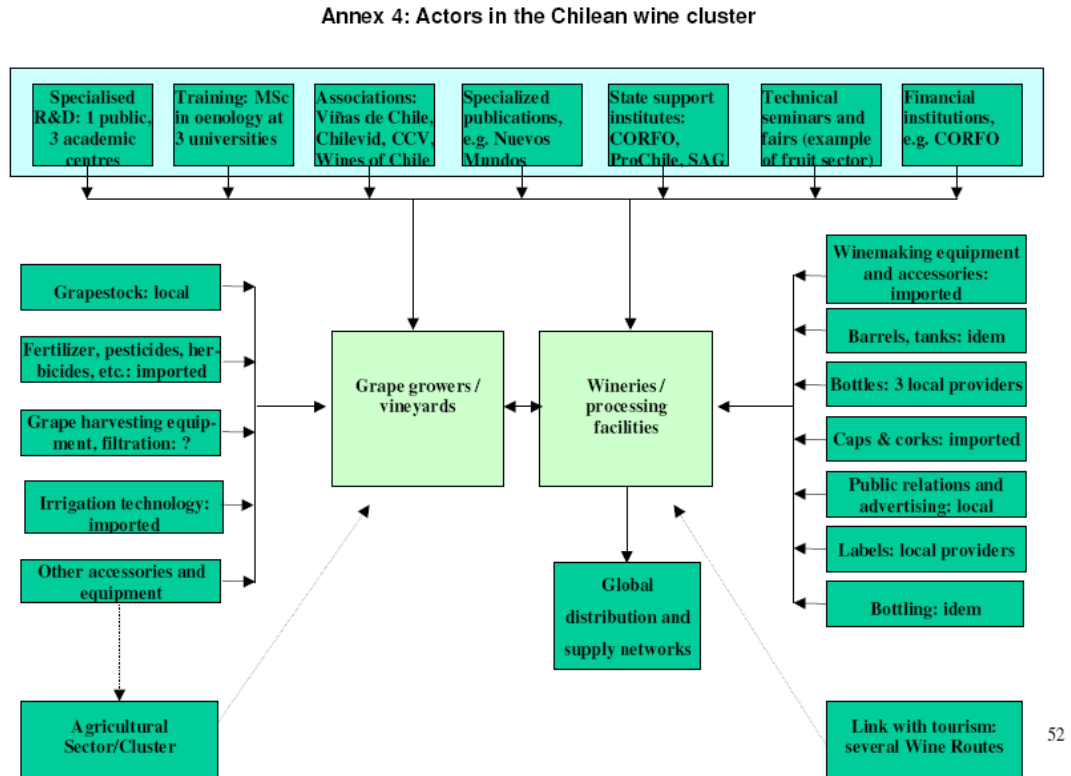
Let's look at the structure of Chile's wine cluster now.

Figure 5.3 Chilean Wine Cluster



Source: Michael E.Porter, 2005: p.31

Figure 5.4 Stakeholders in the Chilean Wine Cluster



Source: Robert Kennedy College, 2010:p.19

In Chapter 2-Literature review (p.19), figure showing the organization of California Wine Cluster was introduced as typical cluster example. Chilean cluster structure is very similar to the former and continues strengthening itself more although weak domestic capacity is observed in terms of several irrigation technologies and equipment and barrels and corks. For example, it remains dependent on Portugal for corks and caps. It needs to import stainless steel

components from Italy, Australia and Germany and oak barrels from France and the U.S (Robert Kennedy College, 2010:p.21). However, due to process and product innovation and dynamic export strategies, Chile is performing better than Californian wine cluster and taking over more market margins.

As it is shown in the diagram, there are two central actors in the Chilean wine cluster: grape growers and wineries backed up by different stakeholders. In order to reduce its dependence on foreign technology and suppliers, Wines of Chile took the initiative in creating a center of R&D in cooperation with the Catholic University. Currently, Chile has 22 research centers regarding wine production, 14 of which are located in the dominating wine making regions of Maule and Libertador Bernardo (L.B.) O'Higgins. They are embedded within universities and within private or public research institutes. Also, Vinnova and Tecno Vid³⁵ have been particularly important in this area. These technological consortia are dependent on Wines of Chile and work together with wineries, universities and research centers to explore and develop production methods that are more environmentally friendly and result in improved viticultural and oenological practices (Wines of Chile-Innovation, n.d.). In relation to vineyards,

³⁵ 2 consortia began with US\$10 million to spend for five years and 24 projects that covered all of the areas including viticulture, enology, environment, and marketing (Wines of Chile, 2010: p.55).

significant efforts are being made to explore new terroirs, especially in cooler places where vines can be grown to produce wines that are naturally lower in alcohol content, and therefore, easier to drink. This means examining the soils in depth as well as working with the nurseries in order to ensure that they are free of viruses and that the newest plantations will have a longer productive life (Wines of Chile-Innovation, n.d.). These days, oenologists and viticulturists are working hard to obtain the best possible fruit. In doing so, more extreme regions, where vine growing was once unthinkable, are also being explored (Wines of Chile, Heritage&Modernity). Besides production and industry-level activities, Chilean wine cluster has engaged in CSR activities to improve its image and attraction along with combining the cluster with tourism. Their effort in continuous innovation within cluster is paying off to some extent as buyers now recognize and appreciate excellent price-quality ratio in every price range of Chilean wine (Wines of Chile, 2010: p.50).

In Chile, government support has been decisive for the development of the wine clusters. It has provided institutional support in three ways: a) through the liberalization of grape and wine production and exports; b) the provision of technological learning for exports, especially towards small producers; and c)

support for export promotion activities and collective marketing initiatives by SMEs. Also, its role has been mostly to address market failures especially those related to information generation and coordination among SMEs in order to exploit economies of scale and of scope. The government has been promoting PPPs and the combination of rules of inclusion and participatory governance, which helped to solve collective problems and pushed mutual monitoring (Eva Gálvez-Nogales, 2010).

Related industries do their part as well for cluster development. For instance, the emergence of a strong wine tourism segment during the past five years has led to an increasing number of wineries developing that aspect of business and attracting discerning tourists with high disposable incomes. The Chilean wine industry seems to be responding well to this new opportunity and demand by expanding its offerings. Wine cluster also benefits from an adjacent strong agricultural sector (Robert Kennedy College, 2010: p.23).

As results of more integrating and collaborative wine cluster that developed exponentially with domestic policies and external circumstances, Chile now retains a good position among wine producing countries. Following information demonstrates the success;

5.4.1 Production and Exports

In 2010, Chile was the 8th largest wine producer, making an average of 887 million liters of wine per year and reaching a market share of 8% by volume (Wines of Chile, 2010: p.5). Planted area increased over 70% during the last 8 years. As results, wine production in 2012 expanded another 20% from the previous year reaching all time record level of 1.255 million liters. With this 2012 production volume, now Chile is the 7th largest wine producing country in the world (Luis Hennicke, 2013: p.2).

70% of Chile`s wine production is for export markets, which have grown steadily in value by 11% per year making it the world`s most globalized wine industry, with great flexibility, innovation, and a long-term commitment to quality and service. In 2012, wine exports increased mainly in volume rising by 36% to 150 destination countries and 1.5 billion consumers. The share of Chilean wines sold abroad increased from 7% in 1989 to 63% in 2002. With this, Chile`s share in global wine export volume rose from about zero in 1984 to over 4% in 2000. Export value rose from 10 million USD (FOB) in 1984 to 145 million USD in 1994 and a dazzling 602 million USD in 2002. From a global perspective, Chile ranked 13th in the world league of wine-exporting countries in 1986. In 2000,

however, it stood at the 5th place. The degree of internationalization of the Chilean wine industry is the highest in the world, amounting to 45.5% during 1996-98 against a global average of 23.3%. In 1980, Latin America still absorbed 88% of Chilean wine export, but this figure dropped to 8% in 2002 (Evert-Jan Visser, p.16). Throughout the 1980s, the USA, Canada and Mexico became Chile's main buyers. Sales to these countries peaked in 1990 at 44% of total exports, after which this figure started decreasing due to the fact that in the 1990s, European importers took over, absorbing more than 50% of Chilean wine in 2002. More recently, Chilean wineries have started to export to Asian-Oceanic countries, whose share increased from 3% in 1995 to 12% in 2002. Exports of bottled wine to China increased almost 83% in 2012, which made China the third largest wine export market in volume and value. On the whole, the number of buyer countries rose from 36 to 96 between 1984 and 1999 due to liberalizing policies and FTAs (Evert-Jan Visser, p.17). Also, constant improvements in quality and a good price/quality relationship have helped to keep or increase exports levels of Chile. Currently, a large number of wineries are making a big effort to increase premium-bottled wine exports to grab more profit margin.

Table 5.1 Area Planted, Wine Production, and Exports of Chile

| | | | Exports | |
|------|-------------------------|-----------------------------|------------|-----------|
| | Area planted (Th.Ha) | Production (mill. liter) | Mill.Liter | Mill.US\$ |
| 1982 | 105 | 603 | 8 | 11 |
| 1992 | 62 | 370 | 74 | 119 |
| 1994 | 53 | 411 | 111 | 143 |
| 1998 | 75 | 547 | 251 | 540 |
| 2000 | 104 | 679 | 276 | 585 |
| 2002 | 109 | 574 | 356 | 610 |
| 2004 | 112 | 655 | 474 | 845 |
| 2008 | 118 | 869 | 591 | 1384 |
| 2009 | 118 | 1009 | 696 | 1390 |
| 2010 | 117 | 915 | 733 | 1554 |
| 2011 | 126 | 1046 | 668 | 1703 |
| 2012 | 126 | 1255 | 754 | 1808 |

Source: Luis Hennicke, 2013: p.3

From the data and information discussed in this chapter, we can see how once mining-dependent Chile could diversify its economy by sourcing copper revenues into creating clusters especially wine cluster and came to be called as miracle of Latin America. As Chapter 2 elaborated export-oriented cluster considering it to be the most effective cluster type, Chilean example fully supports it because the most significant factor in the success of Chilean wine cluster is export. The country paid attention to gradual cluster development at state level and cooperated with different stakeholders in finding out the competitive sector for cluster, building the underlying environment, and popularizing the product

towards export with relentless effort of private sector in other countries. As Chile has many similar conditions to Mongolia, its experience is more likely to be applicable to the country.

CHAPTER SIX

6. STRATEGIC IMPORTANCE OF CASHMERE FOR CLUSTER DEVELOPMENT

6.1 Introduction

The result of expert interview identified cashmere as the most potential and competitive sector to develop under export-oriented cluster approach and stressed the possibility of creating cluster in Mongolia. And, Chapter 5 on Chile's wine cluster showed that resource-affluent countries like Mongolia can diversify their economy through export cluster and prosper on favorable footing. This part of thesis focuses on strategic importance of Mongolian cashmere and current situation of industry to verify potential of the industry and illustrate why cashmere can be better than others. Also, the interview picked up several provinces of Mongolia for cluster location; therefore the latter part of this chapter would be to expose a strategic location for cashmere cluster.

6.2 Mongolian Cashmere Industry

As one of the softest, warmest and longest-lasting materials on the market today, cashmere is said to be eight times warmer than sheep's wool and

about that many times softer (Marina Romanova, 2012). Mongolia is the second-largest cashmere producer after China accounting for 28% of the world's total supply as it produces 6700 tons of raw cashmere annually (Pearly Jacob, 2013). According to the Mongol Cashmere Association, current annual revenues of around 180 million USD are dominated by sales of raw cashmere, which make up 80% of total exports. But, if Mongolia refines all the cashmere before exporting it, profits are said to range between 480 million and 520 million USD (Marina Romanova, 2012). For 40% of Mongols who still adhere to a nomadic lifestyle, cashmere is often a major part of their livelihood and income source.

The export and production of cashmere is a market-driven phenomenon that accelerated after communism's collapse in 1991. Cut off from milk and meat buyers in the former Soviet Union, the herders turned to raising cashmere as one of the only profitable activities available at that time. And without collective farms to manage the animals, individuals began keeping larger flocks, causing the goat population to swell from 5 million in 1990 to almost 20 million by 2009 (Pearly Jacob, 2013), and the amount of raw cashmere produced in the same period increased by 450%.

Mongolia's climate and geography is suited for herding cashmere goats, which thrive in harsh dry mountainous climates and hence produce the highest quality wool. In moderate or warm climates, goats lose the ability to grow the downy coats that produce the quality cashmere necessary for making luxurious garments (Marina Romanova, 2012). Today, more than half of the raw cashmere in Mongolia is exported to China after going through initial step of washing without any other value addition. While Mongolian cashmere fibers³⁶ are one to two microns thicker than the finest varieties from that of China, they are about 10 to 15% longer as a result of the harsher winters that make Mongolian cashmere unique and attractive. This is why China - a leader in the supply of cashmere - imports Mongolian raw cashmere, and then mixes with its own, shorter-fibred variety, to improve quality (Svitlana Pyrkalo, 2013). China buys well qualified Mongolian cashmere at price lower than ordinary market value and produces final products, selling them expensive and gaining big return. Even in international market Chinese cashmere is valued higher as the price of dehaired wool is \$68-79 per kilo while that of Mongolia earns \$55-57 (Baldan Chimedtseren, 2006).

³⁶ The Mongolian cashmere fiber has an average diameter of 16.5 microns and a length of 39 to 45 millimeters.

With the rest of the raw cashmere after exporting to China, Mongolian cashmere/garment companies produce knitwear by purchasing the raw material from farmers, cleaning wool, spinning yarn, weaving fabric, and tailoring the final product. These companies are gaining some popularity in different countries due to its modern and trendy designs and combination of colors. Currently, the sector employs 8800 people (Mongolian Wool&Cashmere Association).

There are 15 main companies that produce final products, 23 cashmere washing and cleaning factories, and 40 SMEs that engage in weaving process, more than 95% of which are located in the capital city (Institute for Light Industry Research and Development, 2012: p.85). Although majority of cashmere companies are concentrated on the outskirts of capital city, they totally run independently and don't cooperate with one another and other related industries and state agencies for innovation and other developments. Thus, we can't call them as part of cluster. Moreover, another reason why it is not cluster is concentration of several cashmere companies in the capital city doesn't qualify for 3 main pillars of cluster as introduced in Chapter 2-Literature Review (p.22 of the thesis). The 1st attribute is geography; although close location of these cashmere factories might sound like cluster, it didn't happen because of deliberate effort;

rather considering of environmental problem from the factory waste and due to lack of land, factories turned out to be built on the outskirts of the city. The second pillar is value creation; clusters have distinct industries that interrelate to produce goods and services further valued by customers. But, some extent of value creation is done by single company or by non-related external actors in the case of Mongolian cashmere industry. Finally, Mongolia doesn't have cluster specific business environment including the cooperation of companies, government agencies, universities and so on within the national and regional innovation system. Therefore, current Mongolian cashmere industry doesn't operate through cluster approach.

6.2.1 Current Drawbacks behind Cashmere Industry

To begin, 50% of raw cashmere or non-value added primary product is flowing to China, creating small profit, and domestic processors will have to operate at about 50% capacity. More than that, the exported amount is smuggled out of Mongolia by Chinese dealers. It is because Mongolian textile factories are competitively disadvantaged compared to Chinese enterprises and thus can't initially offer herders and traders prices that are as high as those paid by Chinese manufacturers. The second reason is the value chain between herders and

manufacturers remains underdeveloped unlike typical example of cluster California wine cluster, mentioned in Chapter 2. Due to distances, few and costly transport alternatives, and the lack of vertical linkages and alliances with national factories, most herders have little choice other than selling their fiber to traders at the farm gate. The majority of traders are more tied into Chinese value chains than into those in Mongolia (Barry Shelley, 2011: p.14). USAID estimate suggests that if all of the country's raw fiber, including that currently smuggled to China, were used to manufacture finished products in national factories, official cashmere exports would quadruple and employment in the textile processing industry would more than double (Barry Shelley, 2011: p.14).

Many of the Mongolian companies are not equipped with high-tech tools and machines, revealing low productivity, and work under their real capacity. For example, in 2011, factories put 697.1 tons of cashmere into process out of the stock or reserve of 4780.4 tons that means circulation percentage rate reached only to 14.6% (Institute for Light Industry Research and Development, 2012: p.91). Comparing to total capacity of Mongolian cashmere factories, utilization in the value-added chain is much lower at each stage.

Table 6.1 Production, Capacity, and Capacity Utilization in the value-added chain

| | Cashmere Production | Capacity | Capacity Utilization |
|-----------------|------------------------|----------------|-------------------------|
| Scouring | 1298 tons | 9417 tons | 40% |
| De-hairing | 806 tons | 1910 tons | 52% |
| Dyeing/Spinning | 147 tons | 363 tons | 42% |
| Knitting | 866.000 pieces | 3.479.000 pc | 77% |
| Weaving | 79.000 meters | 163.000 meters | 52% |

Source: Donald J. Lecraw et al., 2005: p.29

Despite the fact that production of raw cashmere is getting bigger (3576.6 ton in 2009, 3103.9 t in 2010, 2829.5 t in 2011, and 3597.8t in 2012), that of processed and semi-processed cashmere, which brings in more profit is demonstrating declining points (1600 ton in 2009, 1000t in 2010, 500t in 2011 and 2012) (NSO, 2013, p.273).

Then, volatile international cashmere prices have pushed herders to keep larger flocks as a shield against falling prices (Pearly Jacob, 2013). Through mix breeding, herders are focusing on the quantity rather than quality, which has led to a decline in the quality of cashmere (Trade and Environment Database). If Mongolia fixes all these constraints and makes more effort in supporting the industry, it is possible to create extensive benefit.

6.3 Why can cashmere industry be more potential and appropriate for export-led cluster development than others?

Even if current cashmere sector operates under capacity comparing to its resource, there's a great possibility to reform it by effectively spending mining income and creating cluster. Both Mongolian government and general public now understand that cashmere industry without radical transformation will continue losing competitiveness; hence need innovative and advantageous strategies like cluster development.

Chapter 2 displayed that some conditions must be there for export clusters to be successful, namely confirmed production capacity within the target geographic area, some form of actual competitive advantage in terms of process, product, and cost etc, latent readiness among producers to cooperate, and international demand for the product. In relation to it, there are many reasons justifying why cashmere could be promising and capable for export cluster.

To begin, development of cashmere cluster is faster than developing other unpopular sectors and will succeed to greater extent, because it is already the second largest currency-earning export of Mongolia after mining, and in terms of total production for exports, cashmere products are in the third place after copper

and coal. In addition, cashmere production, processing, and weaving garments make up about 15% of Mongolia's total GDP. Even if cashmere remains as one of major export products of Mongolia, current meagre profit margin has been the norm; thus reform based on cluster development is now necessary.

At second hand, although the population of Mongolia is only 2.9 million it has 51.980.926 heads of livestock³⁷, out of which the number of goats is more than that of horses, cows, camels, and sheep. 22 million heads of goats were counted as of Dec 31, 2014 that is the highest ever recorded number, and the growth rate is usually very stable in increasing trend. For example, the number of goat increased by 14.4% in 2014 from that of 2013 (NSO, Dec 31, 2014). At the same time, cashmere is one of the most expensive natural materials on the market today so it could generate a great amount of profit as far as the number of goat doesn't decline.

At third, it possesses comparative advantage over other sectors particularly with regard to international competitiveness, because value-addition can be done at lower cost. If cashmere sector is developed through cluster, in which whole process starting from sourcing raw materials to producing

³⁷ As of December 31, 2014, Mongolia had 2.9 million horses, 3.4 million cows, 349.300 camels, 23.2 million sheep, and 22 million goats (NSO, Dec 31, 2014).

ready-to-use goods are done in the same place, the cost will get further reduced and more efficiency will be observed. Also, it's competitive because Mongolian cashmere goat on the natural pasture is adapted and resistant to extreme weather conditions, making the wool of high-quality. If Mongolia manages to take a measure in popularizing the quality, its cashmere products will be fetching higher price.

Next, cashmere hair is sourced from totally renewable resource unlike mining sector, which means we could gain continuous profit without worrying about the depletion if we can just well-manage the sector through cluster. It is connected with the fact that export potential of cashmere sector is getting stronger in relative to other animal husbandry sectors as Mongolia has been signing different trade papers with foreign countries for selling cashmere products. For example, Mongolia and Japan recently signed a free-trade deal to increase bilateral investment opportunities and trade. Under this agreement, Japan will export cars and other vehicles, technology, equipment, textiles, fruits, and other items. On the other hand, Mongolia will export cashmere, wool, and leather products etc to Japan (M.A.D, August 2014). Moreover, it has a chance of getting into foreign market and creating a niche since similar industries of Russia and

Eastern European countries haven't developed that much (Institute for Light Industry Research and Development, 2012: p.169).

Government has also started considering cashmere as a strategic sector and modifying its policies as favorable to its growth. In April, Ulaanbaatar demonstrated its support for agricultural development with \$86.2 million in soft loans for cashmere companies, garment industries and dairy producers. From the \$1.5 billion bond offering, about \$145 million was earmarked for improving cashmere production technology, dairy production and wool industries (Mongolian Economy, August 2013). Recently resigned Prime Minister Altankhuyag.N said in early January that the government would allocate 209 million USD from the Chinggis bond to provide loans to local businesses in the primary export industries of cashmere and minerals (Paulius Kuncinas, March 2014). The government agreed that developing cashmere industry is Mongolia's best bet to diversifying its economy and it is crucial to reinvest mining wealth in this endeavor. As Mongolia adopted a state policy on PPP as a basic legal framework, cashmere cluster gets broader attention and state support than other agricultural sectors.

Current government formulated a program to develop cashmere sector from 2013 through 2016; within this framework the government is aiming to increase greasy cashmere processing to 100% from its current 30%, production of knitting threads 4 times from its current 1238 ton, production of knit garments to 3.8 million pieces from 1.2 million, and the number of employers in cashmere sector to 20.000 from its current 8000. Through this program, the government promised to provide incentives and financial support and appeal cooperation of local companies to implement marketing strategies and compete with foreign companies in terms of eco-products (Governor`s Office of Bulgan province, 2014). It`s a good sign that Mongolia has understood the strategic importance of cashmere sector and is trying to elevate it to higher level; however if it doesn`t develop through efficient strategies like cluster, the money will be spent in vain. Furthermore, it`s not good to directly subsidize (monetary) the sector without weighty participation and initiation of private sector. Although long time has passed since the government created this program, not much has been accomplished; so the state should immediately take upon cluster approach to move beyond numerical objectives on paper because such efforts could be achieved through the participation of all relevant stakeholders.

In regards to above program, over 11 cashmere companies such as Gobi, Buyan, Goyo, and Altai Cashmere showed their interest in establishing Mongol Cashmere Cooperative for cooperation towards more export opportunity (Governor`s Office of Bulgan province, 2014).

Experts who participated in interview named meat industry as another possible field after cashmere. However, cluster on meat will be less competitive because massive funding will be required as big storage facilities and warehouses containing various processing equipment and other tangible capital should be established, yet it will have less value addition during the export. On the other hand, higher value addition can be accomplished in case of cashmere industry through intangible methods such as marketing and brand promotion. Export environment of meat industry is also very instable as Mongolian livestock is vulnerable to infectious diseases (another cow disease outbreak has recently been identified in Mongolia), and usually prohibited to make foreign sales. For example, until recently Russia had banned meat import from Mongolia owing to the cow disease. Likewise, many countries impose restriction and Mongolia loses profit and competitiveness. Plus, there are many competitors such as Australia, New Zealand, and Brazil etc. that export good-quality but cheaper meat all over

the world. Therefore, Mongolia will need to put so much effort in getting a good position in the international market. Another issue that makes meat less attractive is due to the harsh and cold winter, meat carcasses of Mongolian livestock lose their fat and tend to be thinner, making the output less. When international consumers buy meat, they choose fatter one with more marbling that obsoletes the chance of Mongolia.

Milk industry is also believed to be successful if it is developed through cluster. However, milk output per cow in Mongolian pasture is much less than ordinary cow in the farm from other countries. Besides low capacity for export, domestic milk consumption is so big that Mongolia itself imports milk from China. This reality undermines the competitiveness of milk processed in Mongolia.

Promotion of medicinal plants, which were mentioned in the expert interview, will face difficulty as well even if Mongolia has enormous resource. The reason is many plants grow on seasonal basis and world isn't aware of its advantages as they are not that popular. Since its effects will be known after many people use for a certain period of time, and results aren't visible with bare eyes, it is hard to export in big amount and get a reasonable profit from it. Thus, looking

from different information and expert opinions cashmere is more appropriate and effective for export-cluster development.

6.4 Benefits of prospective Export-oriented Cashmere Cluster

By developing export-oriented cashmere cluster, there are many positive externalities Mongolia can gain. Some follow as:

- It can preserve its long-lasting traditional livestock-based sector and nomadic culture. Countries start developing other sectors for economic purpose but majority of them maintain their traditional one as it is related to countries' identification and underlying competitiveness.
- Almost 40% of the whole Mongolian population lives in the capital city, but more people from the countryside are flocking to Ulaanbaatar city seeking for better employment and life and making the city too congested, polluted, and almost like urban slum in the case of traditional dwelling area. In the end, their living condition gets worse than they were living as herdsmen since they can't find reasonable work due to lack of education. So, if Mongolia creates cashmere cluster in the province, it will reduce problems of the city that arose due to migration from rural area, and herdsmen will have an opportunity to improve their living in their hometown by engaging cluster activities.

- Since cluster consists of various related and supporting industries, there is a great possibility to create jobs that the mining sector has failed to achieve. This way, poverty rate will also decrease as rural people are generally much poorer.
- Cluster will increase overall productivity and efficiency of cashmere industry that will contribute to economic growth. Current collection system of raw material is uncontrolled, lacks interconnection among herders, producers and traders, and uses outdated commercial configuration (Baldan Chimedtseren, 2006). As results, the domestic market is influenced by Chinese traders, and companies operate at 50% capacity. If collection system is regulated within cluster with an impact on supply, transportation, storage and use, Mongolian companies will be able to operate at full capacity and produce more final goods.
- As it is pointed out in Chapter 2, cashmere cluster members will benefit from collective actions such as joint marketing, purchasing, and technology management, training, facilities, testing etc that will lead to smoother export.

Above points verify that creating an export cluster on cashmere industry is very helpful. Besides being cost-efficient, cashmere cluster will have a positive

effect not only on the growth of economy, manufacturing sector, employment, and trade but also on other micro-level developments.

6.5 Comparative study on Italian Loro Piana

Although Mongolia has a great potential to benefit from cashmere industry, poor management at all levels limits the chance. While Mongolia is toddling without growing much, a company called Loro Piana has already taken advantage of Mongolian cashmere and made it their unique brand. Next part will explore how the company is making profit from cashmere products (from a brand), and aims to show that Mongolia can also benefit from its own resource by implementing export-led cluster initiative.

6.5.1 Profit increase by tapping the resource of Mongolia

Since the best white (dehaired) cashmere costs \$75 per kilo and one sweater requires at least 200g of fiber, it is obvious that cashmere garment is very expensive product comparing to cotton and other fibers. However, Mongolian products are sold at lower price, and not very well-known in relative to its quality. There are some boutiques of Mongolian cashmere companies in different countries, and cardigan or sweater usually costs around 350-500\$ with “Made in Mongolia” tag. At the same time, many world famous brands order different

garments and products from Mongolian cashmere factories without the label of those companies, and sell them at higher price by putting their own label. And, if the brand image is stronger all over the world, their price goes higher and higher.

Loro Piana³⁸, the 200-year-old Italian top cashmere company whose name is synonymous with the finest cashmere in the world, recently introduced a collection of ultra-luxurious, baby cashmere, which is obtained combing the under-fleece of the youngest kids of goat. Now, they own a herd of white caprahircus goats in Mongolia and make their products in a mill outside Milan. As the result is the softest, finest possible cashmere that feels as if you're wearing clouds, a baby cashmere classic V-neck style sweater runs around \$995 at the lowest, then it becomes about 4000\$ or more (Sabrina Azadi, January 2010). It's very rare and precious fiber gathered only once in a goat's life, between 3 and 12 months old. Deriving from the mountainous regions of Mongolia, it is taken in extremely limited quantity since one kid produces less than 80 grams of wool, which is reduced to only 30-40 grams that are usable. It takes the fleece of 19 kids to make one pullover. Baby Cashmere is also much finer as the average diameter

³⁸ Loro Piana is a family-owned business that spans six generations. It is known for finding and distributing rare fibers, making it an asset to other luxury brands, and the world's largest manufacturer of cashmere. The brand's products can be found in more than 130 directly operated stores around the world as well as select wholesale stores (Joe McCarthy, 2013).

is about 13-13.5 micron and lightness and softness are incomparable (Loro Piana, Baby cashmere, n.d.). It's understandable that baby cashmere products have a high cost, but with the help of their brand image and popularity, high-tech machines, design, and marketing strategy etc, Loro Piana gains more revenue in relative to the cost.

Now, this baby cashmere has become the trademark of Loro Piana being registered under the company's name, and they are the pioneer in popularizing the fiber and seeing the chance of benefitting a lot by using this rare and special kind. However, the source of this raw material that is making millions of dollars is Mongolia whose products are sold at moderate price, and make less money compared to its quality.

Nonetheless, in order to make baby cashmere their top brand, the company made so much investment and effort. They established Loro Piana Mongolia Co in Ulaanbaatar city in 1997. 60 employees from Italian company came to Mongolia to work and convinced herdsmen to comb the fleece of 3 to 12-month old hyrcus goat once a year. Although herdsmen were wondering why they would do so as it gives out small amount of cashmere, they asked to continue the process. It's because they could get fiber that has a thickness of 13.5 micron-

the finest quality. Out of 10 years of their effort in beginning to promote real products, they spent 5 years to convince herdsmen and the other half to accumulate enough raw cashmere to make garments. Every May, workers go to even remotest place of Mongolia and establish centers to buy the cashmere directly from the herdsmen at lower price (MWCA, May 2014).

Mongolia is losing much by selling mostly raw cashmere. For example, from over 19 million heads of goat, Mongolia gets 6500 ton of raw cashmere per year. If we export 6500 ton without processing, the revenue would be 266.500.000 USD ($6500 \times \$41^{39} = \$266.500.000$). But, if the country processes and produces value-added goods, then exports it, the revenue would rise up to 748.192.856 USD. And, the difference from above calculation is 481.692.856 USD ($748.192.856 - 266.500.000 = 481.692.856$). With USD 481.692.856 that Mongolia is losing as it couldn't export processed and value-added products, it could have created 40.000 jobs and taken 160.000 people out of poverty. For a country, which has a population of only 2.9 million, creating new employment and poverty reduction is significant (Battulga Khaltmaa, Member of Parliament of Mongolia).

³⁹ When the study was done at the beginning of 2014, the price of raw cashmere per kilo was \$41.

Above study suggests that Mongolia has better opportunity to develop its cashmere sector in a more profitable way like Loro Piana as the resource is there. While creating cashmere cluster, Mongolia should make use of Loro Piana's lessons on brand making and marketing strategy and producing highly value-added products. Or, it can even establish a partnership with the company.

6.6 Strategic Location for Cashmere Cluster

The results of expert interview in Chapter 4 (pp.83-86) suggested identifying cluster location by scrutinizing availability of raw materials, infrastructure development, and distance to the main markets etc. Thus, the researcher looked in statistical news and different reports and articles to find out a location for export-oriented cashmere cluster.

In the case of Chilean wine cluster, we observed that majority of the production is carried out in 2 big regions. However, Mongolia has a small economy (\$11.52 billion as of 2013, according to World Bank) with only 2.9 million people, most of whom are concentrated in Ulaanbaatar and few other cities. And, cluster project takes much time and requires huge funding both from the government and private sector, yet the country currently faces grave economic issues. So, instead of establishing clusters in different provinces that have more

goats Mongolia needs to select only 1 strategic location, which possesses more advantages, and establish other types of competitive clusters in remaining regions.

Figure 6.1 *Provinces of Mongolia, Administrative Divisions*



Source: Trip Mongolia

At the end of 2014, the number of goats of Mongolia reached a record high of 22 million heads (NSO, Dec 31, 2014).

Table 6.2 Top 5 provinces with most goats

| Name of Province | Number of Goats |
|------------------------|-----------------|
| 1. Bayankhongor | 2.138.102 |
| 2. Uvurkhangai | 1.838.280 |
| 3. Govi-Altai | 1.620.884 |
| 4. Khuvs gul | 1.619.267 |
| 5. Tuv | 1.432.545 |

Source: National Statistical Office of Mongolia, Dec 31, 2014

Even if Bayankhongor and Uvurkhangai provinces get the 1st and the 2nd place in terms of absolute numbers of goats, Tuv province, in the 5th place, that also has many heads of goats seem to have more advantages in different attributes.

First of all, Tuv province is geographically closest to the capital city, where majority of the domestic sale is done, and closer to other big cities. Also, although its own capacity can supply much raw cashmere, Tuv province can still source more raw material from Bayankhongor and Uvurkhangai provinces, which have the most goats, as it is situated right next to these provinces. At present, since many herders from these provinces are reluctant to go to the capital or centers to sell their cashmere, the Chinese go instead to buy at higher price that negatively influences smuggling of raw cashmere. But, if organized system of sourcing the material is created through cluster, herders from these provinces don't have to travel far to sell. Besides being close to the main domestic markets, it's also close in terms of resource supply.

Secondly, from the export-oriented cluster section of Chapter 2, answers of expert interview in Chapter 4, and the experience of Chile in Chapter 5 respectively, we saw how clusters could generate more stable revenue from export. But, good development of logistics must be there to carry out export and cut the costs. Tuv province has many advantages at infrastructure and logistics. It's connected to the capital city and other regions, especially with Bayankhongor and Uvurkhangai, with hard-paved roads. More importantly international hub airport,

to be the biggest in Mongolia, is currently being built in Tuv province with Japanese ODA loan and scheduled to finish at the end of 2015 (New Ulaanbaatar International Airport, n.d). If the cluster is developed in this province, it will be economical to directly export value-added cashmere garments using the new airport to major international markets. Then, new wind farm “Salkhit” with the capacity of 50 MW started operating in Tuv province from June, 2013 transmitting stable electricity all over the province (Newcom Company, n.d). Since cluster initiative is a big-scale project necessitating much amount of power, this farm could be a cheaper and eco-friendly solution.

At third, as Tuv lies close to the capital city, the residents have better access to education and province itself has more development. It'll be easier and closer for current cashmere companies in the capital city to relocate to Tuv and they can employ local people in the new project. While contributing to the local economy, it can also benefit congested capital city, to which more rural people move for better living and employment, through some decentralization and migration of people to the Tuv province. This way, the burden of Ulaanbaatar will be shared and in the future, Tuv can even become a satellite city of the capital. Likewise, Tuv province might be a good fit for prospective cluster.

Chapter 6 discussed the strategic importance of cashmere industry along with its current situation that immediately requires an innovative transformation. As present industry operates under capacity with separate companies and less communication, export-oriented cluster seems to be able to fill in the gap. After identifying the exact sector to develop, the place should be located as a prerequisite. Reasons provided in the section 6.6 and suggestions of experts fall on Tuv province as possible location to develop export cluster.

CHAPTER SEVEN

7. DISCUSSION OF FINDINGS

7.1 Introduction

This chapter provides discussion of the research findings. The discussion presents answers on main research questions obtained through conducted study. In this section, issues related to the diversification of Mongolian economy through cluster approach, the relationship between cluster and cashmere industry towards the development of multi-pillar economy, and export-oriented cluster formation etc will be discussed.

7.2 Discussion of the Research Findings

The focus of this discussion is targeted at answering the following central questions:

- How can Mongolia diversify its economy from mining sector through cluster approach in order to prevent from Dutch Disease? And what could be more promising and potential sector to facilitate diversification?
- How can Mongolia overcome the challenges of establishing clusters?

The answers to other research sub-questions were provided in Chapter 2, 3, 4 and 6 of the given paper.

7.2.1 How can Mongolia diversify its economy from mining sector through cluster approach? And what could be more promising and potential sector to facilitate diversification?

To obtain an answer to above question, the researcher conducted expert interview and thorough study on various secondary data.

Cluster initiative is found to be promoted by and at the intersection of different policy streams including regional economic development policy, science/technology/innovation policy, industrial/enterprise policy, and even education policy; hence indirectly supporting the development of other sectors (OECD, 2010: p.2). From Chapter 2, it was further determined that cluster is innovative and effective approach to diversify economic structure of a country since it brings positive externalities such as improving international competitiveness, productivity, and creating new businesses. More importantly, case study on Chile confirms that mining-dependent countries like Mongolia could utilize export cluster, capitalizing on its current comparative advantage and capability, to achieve quality growth. But, it reminds that active government support in building underlying environment and giving incentives to private sector; bottom-up involvement of all related stakeholders; and external factors determine the success

of cluster. Besides Chilean study, all experts who participated in the interview regard export cluster as time-consuming but the most effective solution in the long-run. They think that current situation won't change much or it will turn into mere fire-extinguishing measure if Mongolia focuses on introducing advanced technology, financially supporting SMEs, and promoting export expansion etc. Because, Mongolia has already observed that these separate measures become waste of money and time. We have a case that bond money, which is the same as state debt, was earmarked for supporting SMEs and their business but turned into burden of debt without substantial result. These policies fail many times since they are pursued without synergy and any systemic logic.

The result of interview found that animal husbandry especially cashmere cluster is the best alternative for now to facilitate diversification. This is because promotion of relatively competitive and capable sector is helpful to start certain cluster since it is a gradual and long process and Chilean case proves it. Cashmere is such sector in Mongolian economy that has more weights in export, state income, and industry development comparing to other agricultural fields. At the same time, it is able to improve living standards of poorer population, connect related industries and herders under one roof, and increase competitiveness of

Mongolia. Cluster development incorporates high technology, new ideas and advanced process etc; hence cashmere cluster will help stage national innovation system that Mongolia still doesn't possess.

It's said that certain clusters should be identified and built capitalizing on the current capacity and assets that means relatively competitive sector will be more effective to deploy through cluster approach. Especially, it was determined that three pillars, namely geography, value creation and business environment, constitute cluster and should be considered to manage typical cluster as it is pointed out in Chapter 2. In the case of cashmere industry, we have high possibility to quickly achieve above 3 requirements and establish real cluster. In terms of geography, cluster should be concentrated in one region, which has different advantages, and the researcher chose Tuv province as a location to create cashmere cluster based on its raw material availability and infrastructure development. Then, cashmere has more potential to tap value creation as it fetches bigger marginal profit from each step of value chain. Lastly, clusters are affected by business environment conditions including cooperation of companies, public institutions, and educational facilities etc. It is demonstrated that cashmere industry can get more attention from above array of institutions and obtain

favorable support from the government and private sector. Points provided in previous chapters verify that cashmere cluster has potential to diversify the economy and improve productivity and competitiveness of Mongolia.

But, one thing all experts emphasized is that in order to hold on to more profit, cashmere cluster must be export-led with better efficiency and productivity because the demand curve is more elastic there among other benefits. According to them, almost in all countries population under middle class is steadily increasing that means Mongolia can have more buyers of high-value cashmere products as long as its products are competitive enough. Experts said that it is possible to achieve since Mongolian cashmere already possesses favorable position in some countries.

It is evident that there will be difficulties and constraints. But, if Mongolia doesn't undertake this kind of long-term project like export-oriented cashmere cluster, already downing economic situation will trigger serious crisis. It should be mentioned that the government is now aware of this scenario and is studying different diversification methods including cluster approach as this innovative strategy pays off in the long run.

7.2.2 How can Mongolia overcome the challenges of establishing clusters?

Based on findings, it became obvious that cluster is a big-scale project that brings up various challenges and requires the effort and cooperation of every stakeholder of society. The research found that government has a pivotal role in drawing the basic roadmap of cluster starting from creating related legislation and investment framework, infrastructure development to providing financial and other incentives to other cluster parties.

Then, cashmere cluster needs a solid build-up of supply-production-distribution value chain; so that Mongolia can reach export stage in a systematic way. But, experts pointed out that cashmere industry should engage in continuous acquisition, adaptation, and use of knowledge and new technology innovations to improve productivity. They suggest tapping into foreign technology and applying them in local context to overcome challenges in a shortcut.

It was further determined that more number of educated labor force must be trained and the skills of current workers should be upgraded as particularly cashmere industry lacks proper human resource. It can be carried out with joint actions and cooperation of universities and the government. Under this point, they also mentioned that technology institutions must strengthen their operations

through more R&D and reach out to cashmere companies and other supporting industries with offers to provide technology support. Eventually, private sector should take the initiative in leading cluster effort and coordinating other stakeholders since it has information on real market situations, and it's the major player in conducting cluster activities.

If Mongolia is to choose Tuv province as a location for cashmere cluster, relevant local and national parties should carefully examine and analyze the feasibility before starting to implement the project, because small error in between can fail the whole cluster effort. Then, it is suggested that cluster developing stakeholders should refer to the graph on “How Clusters Evolve” from Chapter 2 (p.25) to effectively plan the initiative.

After assessing the potential of cashmere and identifying location and advantages for different participants once again, communication strategy and marketing and recruiting activities should be followed by identifying rules of engagement and carrying out networking activities. Eventually, formal meetings of interested parties and real design and marketing strategies must be undertaken before starting tangible establishments like it is presented in Chapter 2. Even this

kind of planning period will take much time and funding, but it needs to be carefully done through step-by-step and feedback process.

Even if challenges undermine cluster development, the government has become aware of its benefit, thus going towards the right direction. If Mongolia works on its weak points and supplements the strengths in close collaboration with other parties, export-led cashmere cluster is potential enough to diversify the economy.

CHAPTER EIGHT

CONCLUSION AND POLICY RECOMMENDATIONS

8.1 Conclusion

This research intended to find out possible ways Mongolia could diversify its economy to prevent from Dutch Disease and the role of cluster approach to facilitate diversification. It also aimed to determine an appropriate cluster for Mongolia.

It was found out that clustering links to a virtuous circle of development and eventual competitive advantage. While upgrading innovation and creating new businesses, it becomes the spot for foreign investment, which in turn brings diverse skills and expertise contributing to cluster stakeholders.

Then, Chilean case study proves that fostering export cluster is more focused and effective than other strategies to carry out economic diversification of resource-rich developing countries. Cluster is an economy-wide project, integrating all-level stakeholders and bringing positive impact on numerous supporting and related industries, that makes it a capable policy for diversification.

The findings revealed that cashmere cluster is more potential and suitable to develop for now as it not only disperses economic externalities but also it is likely to improve the living of big part of population. It will be fulfilled as long as it is export-oriented cluster that employs full operating capacity to produce high-value final goods for different market demands. Export-driven cluster will provide Mongolia an opportunity to access larger and more sophisticated markets.

Some data analyses and results pick up Tuv province as a strategic location for cashmere cluster out of other raw cashmere producing prefectures, because it has better logistics and infrastructure development besides lying closer to the capital city. This will contribute much to value-added cashmere export to diverse markets and increasing profit. In addition to having a big number of goat population itself, Tuv is situated right next to two other cashmere supplying provinces, providing possibility for stable raw material source. Since Tuv province has long been nominated for kind of satellite city as a way to decrease the burden of Ulaanbaatar, various investments in its development are already being planned out, so it might be advantageous and economical to establish cashmere cluster there.

It's critical to highlight that cluster development faces many hurdles though. While domestic economy isn't big enough to provide sufficient funding, foreign investment sentiment looks blurry. The weaknesses of SMEs and internal linkages among main cluster agents (firms, government, academia, finance institutions) become an obstacle. Long-time informal organization of raw-material suppliers and producers and backwardness in terms of technology, infrastructure etc are also a challenge.

Due to the time limit, this research only focused on determining whether cluster approach can be beneficial and viable for economic diversification and coming up with a potential cluster. Therefore, further study should be conducted on examining and verifying the feasibility of the strategic location for cluster and making internal structure clear along with specific roles of different stakeholders, towards further legislation and planning for physical establishments etc.

8.2 Policy Recommendations

Based on the findings and conclusions drawn for this research, the following policies are recommended for the future development of cashmere cluster.

Recommendation for cluster issues

After deciding on cashmere cluster and making clear its advantages, benefits, and basic structure, relevant entity should carry out feasibility study for Tuv province to examine its potential as cluster location and prepare detailed comparative studies. As an underlying environment, the government should enact or modify all relevant laws to create favorable environment for cluster initiatives and develop action agenda. The agenda must include demanding but realistic objectives to be achieved within indicated time frame. Starting from building necessary infrastructure and institutions, enhancing the investment climate to giving incentives to cluster-related stakeholders such as private sector, the government should provide core public goods. In addition, the government should make more investment in R&D as cluster is innovation-intensive, in educational institutions to upgrade the ability of human resource, and in creating an organized supply chain or stock market for raw material. Moreover, the government should become welcoming to foreign direct investment by for example implementing PPP-based projects since establishing cluster requires an all-out effort.

Besides facilitating role of government, all actors (governments, herders, business firms, academic institutions etc) should engage in highly-integrated

collective actions to increase competitiveness of the cluster. Those actions include resolution of coordination problems (logistics, inputs supply, access to financial services etc); advancement in infrastructure and research; lobby of government in adopting better cluster-related measures and policies; and eco-friendly undertaking in compliance with sustainable development.

Recommendation for cashmere sector issues

Mongolia's cashmere processing industry isn't advanced enough to meet the world demand particularly at the final goods` stage that focuses on marketing and branding. Because of that, it lost many high-end consumers. Therefore, the country first should improve raw cashmere quality or produce pure organic material without much dyeing and bleach because that unique natural fiber adds more values to the final product. Leading international cashmere processors prefer a fiber of 17.5 microns or less for woven items, or 16.5 microns or less for knits; the best cashmere hair has a diameter of less than 16.5 microns and a length of about 43 mm. The price differential between fine and average dehaired cashmere could reach over 30% (Yueh-Hua Lee et al., 2010:pp.3-4). Offering price incentives for quality product and then providing herders with the means to improve herd quality would be a good start. If herders are given the knowledge of

how to improve quality and are then paid a premium for quality, they are likely to respond rapidly. Thus, incentivizing herders is a crucial step.

Secondly, there is an option to add value by branding and taking promotional actions in order to popularize Mongolian cashmere. Given the substantial excess capacity in the industry, most of this processing could be accomplished without much additional investment in capital plant or equipment except for adding value with design, marketing, and branding. For instance, Mongolian cashmere has many strong points and advantages as it is warmer and softer; rare/exclusive; and 100% pure wool without blend of silk or cotton. Likewise, Mongolia should make the consumers aware of difference between low-quality but expensive cashmere of other countries and high-quality Mongolian fiber.

Lastly, rather than becoming contract processor and producer of world big brands and earning less it is recommended that Mongolia create its own country brand and export with “Made in Mongolia” label; then it can grasp more profit. In the end, all this endeavor will be better managed through organized and closely-cooperating cluster activity in a certain strategic location.

REFERENCES

- A.J Smit. (2010). The competitive advantage of nations: *Is Porter's Diamond Framework a new theory that explains the international competitiveness of countries?*. Southern African Business Review, Vol.14, No.1, pp.105-130.
- Amar.B. (2013). Latin Mongolia and the imminent debt crisis. UB Post, November 6, 2013. Retrieved from <http://ubpost.mongolnews.mn/?p=6634>
- Amy Cogan Wares. (2008). The Cluster Approach to Economic Development. USAID, Technical Brief No.7. Retrieved from <http://www.clustermapping.us/sites/default/files/files/resource/The%20Cluster%20Approach%20to%20Economic%20Development.pdf>
- Ann Markusen. (July 1996). Sticky Places in Slippery Space: A Typology of Industrial Districts. Economic Geography, Vol.72, Issue 3, pp.293-313. Retrieved from <http://www.hhh.umn.edu/img/assets/3728/districts.pdf>
- Ariunaa.Kh&Hong-Jin Kim. (n.d). Diagnosing Dutch Disease: *Does Mongolia have the symptoms?*.The Mongolian University of Science and Technology. Retrieved from http://csms.edu.mn/result/download1/articlecollection/Ariunaa%20iltgel%20Kim%20Dutch%20Disease_Final_1346736016.pdf
- Asel Isakova&Alexander Plekhanov. (2012). Managing Mongolia's Resource Boom. Working Paper No.138, January, 2012.European Bank for Reconstruction and Development.
- Asian Development Bank. (1992). *Mongolia: A Centrally Planned Economy in Transition*. Hong Kong: Oxford University Press.
- Asian Development Bank. (2014). Asian Development Outlook 2014- Mongolia: *Fiscal Policy for Inclusive Growth*. ADB- Mongolia.

- Baldan Chimedtseren. (2006). Issues Concerning the Development of Mongolia's Cashmere Processing Industry. The Economic Research Institute for North East Asia. Retrieved from <https://www.erina.or.jp/en/Opinion/2006/Russia/chimedtseren.htm>
- Bank of Mongolia. (2014). Monthly Inflation. Statistical Bulletin - January. Retrieved from www.mongolbank.mn
- Barry Shelley. (2011). Case Study on Potential for Scaling Up: *Value Chain Development for Textile Products in Mongolia*. World Bank Development Marketplace Project Number 6251. Retrieved from <http://siteresources.worldbank.org/INTARD/Resources/335807-1338987609349/MongoliaCaseStudy.pdf>
- Catalin Boja. (2011). IT Clusters as a Special Type of Industrial Clusters. *Informatica Economica*, Vol.15, No.2, pp.184-193. Retrieved from <http://revistaie.ase.ro/content/58/17%20-%20Boja.pdf>
- Chimeddorj. (n.d.). Supporting Cluster is much more important than Cambridge education. *Mobile Time*. Retrieved from <http://mobile.time.mn/mcontent/913.shtml?s=>
- Christian H.M. Ketels. (2003). Cluster-Based Economic Development. EDA Annual Conference. Institute for Strategy and Competitiveness, Harvard Business School.
- Christian H.M. Ketels&OlgaMemedovic. (2008). From clusters to cluster-based economic development. *Int. J. Technological Learning, Innovation and Development*, Vol. 1, No. 3, pp.375–392. Retrieved from http://ibr.hi.is/sites/ibr.hi.is/files/From_clusters_to_cluster_based_economic_development.pdf
- Country Data. (June, 1989). Socialist Construction under Tsedenbal, 1952-84. Country Data. Retrieved from <http://www.country-data.com/cgi-bin/query/r-8910.html>

David L. Barkley & Mark S. Henry. (1997). Rural Industrial Development: *To Cluster or Not to Cluster?*. Oxford Journal, Vol.19, Issue 2: pp. 308-325

Development Post. 2013. Minegolia: Can the Asian frontier escape the Dutch Disease?. Retrieved from <http://www.development-post.com/blog-posts/minegolia-can-the-asian-frontier-escape-the-dutch-disease/>

European Communities. (2008). The Concept of clusters and Cluster policies and their role for Competitiveness and Innovation: *Main Statistical Results and Lessons Learned*. Commission Staff Working Document SEC (2008) 2637. European Commission, Luxembourg. Retrieved from http://ec.europa.eu/enterprise/policies/innovation/files/clusters-working-document-sec-2008-2635_en.pdf

Eva Gálvez-Nogales. (2010). Agro-based Clusters in developing countries: *Staying Competitive in a globalized economy*. Agricultural Management, Marketing and Finance Occasional Paper 25. Rome, Italy: FAO, United Nations.

Evert-Jan Visser. (2004). A Chilean Wine Cluster? *Governance and Upgrading in the phase of internationalization*. ECLAC/GTZ project on “Natural Resource based Strategies Development” (GER 99/128). Santiago, United Nations.

Evert-Jan Visser and Peter de Langen. (2006). The importance and quality of governance in the Chilean wine industry. *Geo Journal* (2006) 65, pp. 1-21.

Frank Langfitt. (2012, May 21). Mineral-rich Mongolia rapidly becoming “Mine-golia”. National Public Radio. Retrieved from <http://www.npr.org/2012/05/21/152683549/mineral-rich-mongolia-rapidly-becoming-minegolia>

Frauke de Weijer. (n.d.). Cashmere Value Chain Analysis Afghanistan. USAID, Accelerating Sustainable Agriculture Program.

Ganbat. (2010). Mongolia: *Building a sustainable economic growth through downstream industries and infrastructure*. National Development and Innovation Committee Sainshand Industrial Complex Task Force Team. Retrieved from http://www.neaef.org/public/neaef/files/documents/publications_pdf/young_leaders/5th/Ch%20Ganbat.pdf

Gobi.(n.d.).Overview of the Company. Retrieved from <http://gobi.mn/%D0%BA%D0%BE%D0%BC%D0%BF%D0%B0%D0%BD%D0%B8%D0%B9%D0%BD-%D1%82%D1%83%D1%85%D0%B0%D0%B9/>

Gobi.(n.d.).Production. Retrieved from <http://gobi.mn/%D2%AF%D0%B9%D0%BB%D0%B4%D0%B2%D1%8D%D1%80%D0%BB%D1%8D%D0%BB/>

History of Mongolia.(n.d.).Mongolia after 1945.History of Mongolia. Retrieved from <http://historyofmongolia.com/1945-post.html>

Institute for Light Industry Research and Development. (2012). Technical and Economic Preliminary Research on finding out proper location for establishing and developing region-wide industrial complexes that would process livestock-based raw materials (*meat, milk, hide, wool, and cashmere*). Final Report, No. TH-12/04. Ulaanbaatar: Ministry of Economic Development.

International Monetary Fund. (2014, January 24). Mongolia- Selected Macroeconomic Indicators. Ulaanbaatar: IMF-Mongolia

Introduction to Erdenet Mining Corporation.(n.d.). Retrieved from http://www.erdenetmc.mn/en/about_us/

Investment Agreement between the Government of Mongolia and Ivanhoe Mines Mongolia Inc LLC and Ivanhoe Mines LTD and Rio Tinto International

- Holdings Limited.(2009).Retrieved from http://www.turquoisehill.com/i/pdf/Oyu_Tolgoi_IA_ENG.PDF
- Investment Agreement of Oyutolgoi.(n.d.). Retrieved from <http://ot.mn/en/about-us/investment-agreement>
- Ismail Bakan&Inci Fatma Doğan. (June 2012). Competitiveness of the Industries based on the Porter`s Diamond Model: *An Empirical Study*. IJRRAS, Vol.11, Issue 3, pp.441-455.
- Jargalsaikhan. (2012, October 25). Is there a limit to external debt?. The UB Post. Retrieved from <http://ubpost.mongolnews.mn/?p=1600>
- Jargalsaikhan. (2014, January 12). Ninja economy. The UB Post. Retrieved from <http://ubpost.mongolnews.mn/?p=7383>
- Jargalsaikhan. (2014, March 30). Let`s kick-start our coal policy. The UB Post. Retrieved from <http://ubpost.mongolnews.mn/?p=8544>.
- Jargalsaikhan. (2014, April 6). Productivity is the way out. The UB Post. Retrieved from <http://ubpost.mongolnews.mn/?p=8648>
- Jargalsaikhan. (2014, May 25). Mongolian Economy is back on the ground. The UB Post. Retrieved from <http://ubpost.mongolnews.mn/?p=9320>
- Jargalsaikhan. (2014, June 8). Is Rio Tinto our friend?, The UB Post. Retrieved from <http://ubpost.mongolnews.mn/?p=9620>
- Jargalsaikhan. (2014, July 27). Is the Smart Government an Extractive Club?.The UB Post. Retrieved from <http://ubpost.mongolnews.mn/?p=10900>
- Joe McCarthy. (July 2013). LVMH purchase of Loro Piana to yield global cashmere dominance. *Luxury Daily*. Retrieved from <http://www.luxurydaily.com/lvmhs-80pc-control-of-loro-piana-doesnt-menace-luxury-landscape/>

- Joe Tidd, John Bessant&Keith Pavitt. (2005). *Managing Innovation: Integrating Technological, Market and Organizational Change*. England: John Wiley&Sons Ltd.
- Jose Pablo Arellano. (2012). Copper Mining and its Impact on Chile`s Development. @Journal, Vol.16, No.35, pp.45-57. Retrieved from <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=37317800>
- Kleinhardt FGI. (2002). *Industry Clusters: History, Theory, Practice*. Retrieved from <http://www.kleinhardt.com/files/5/Cluster%20Review%20paper121202.pdf>
- Law of Mongolia. (2006, July 8). The Mineral`s Law of Mongolia. Integrated System of Legal Information of Mongolia
- Loro Piana. (n.d.).Baby Cashmere. Retrieved from <http://www.loropiana.com/flash.html#/lang:en/panel:section/baby-cashmere>
- Lynn Mytelka&Fulvia Farinelli. (2000). *Local Clusters, Innovation Systems and Sustained Competitiveness*. United Nations University, Institute for New Technologies. The Netherlands
- Macaron, H., Jeffrey, D., & Joseph, E. (2007).*Escaping the Resource Curse*. New York: Columbia University Press.
- Marina Romanova. (2012, February 24). Mongolia`s Cashmere Industry. Mongolia Briefing. Retrieved from <http://mongolia-briefing.com/news/2012/02/mongolias-cashmere-industry.html>
- Martin Kunc and Tomas G.Bas. (2009). *Innovation in the Chilean Wine Industry: The Impact of Foreign Direct Investment and Entrepreneurship on*

Competitiveness. AAWE Working Paper No.46, pp.1-25.American Association of Wine Economists.

Mercedes Delgado, Michael E. Porter, and Scott Stern.(2011). Clusters, Convergence, and Economic Performance. Retrieved from <https://aa-mg6.mail.yahoo.com/neo/launch?.rand=8ikhaecmthaki#1728309149>

Metals World. (2013). Future of Mongolia`s Mining Sector. Retrieved from <http://metalsworld.wordpress.com/2013/01/26/future-of-mongolia-mining-sector/>

Michael E.Porter. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York: Free Press.

Michael E.Porter. (1990). The Competitive Advantage of Nations. Harvard Business Review, March-April, 1990, pp.71-91.

Michael E.Porter. (1997). How Competitive Forces Shape Strategy. Harvard Business Review, July-August 1997, pp. 1-10.

Michael E.Porter. (1998). Clusters and the New Economics of Competition. Harvard Business Review, November-December 1998, pp.77-90.

Michael E.Porter. (1998). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press.

Michael E.Porter. (February 2000). Location, Competition, and Economic Development: *Local Clusters in a Global Economy*. Economic Development Quarterly, Vol. 14, No.1, pp.15-34.

Michael E.Porter. (2003). The Economic Performance of Regions. Regional Studies, Vol. 37, No.6&7, pp.549-578.

Michael E.Porter. (June 2005). Chile`s Competitiveness: *Where does the country stand?*. Harvard Business School: Institute for Strategy and Competitiveness.

Michael E.Porter. (July 2008). Competitiveness: *Creating a Mongolian Economic Strategy*. Harvard Business School: Institute for Strategy and Competitiveness.

Mining Mongolia- 90 years.(2012). Info Mongolia. Retrieved from <http://www.infomongolia.com/ct/ci/3736>

Ministry of Foreign Affairs of Mongolia.(n.d.). National Mongolian Livestock Program (Draft). MOFA, Government. Retrieved from <http://mofa.gov.mn/mn/images/stories/busad/mmeng.pdf>

Mongolian Economy. (2014, July 23). The Mining Sector saw 58.63% implementation rate on time. The Mongolian Economy. Retrieved from <http://mongolianeconomy.mn/en/i/6298>

Mongolian Economy. (2014, August 14). Mongolia: *Ulaanbaatar Wrestles with Dutch Disease Dilemma*. The Mongolian Economy. Retrieved from <http://mongolianeconomy.mn/en/i/4552>

Mongolian Wool&Cashmere Association. (2014, May 08). Baby Cashmere will dominate the whole world. Retrieved from <http://mongoltextile.mn/news/99>

Mongolian Wool&Cashmere Association.(n.d.).The Number of Mongolian Livestock, Production Amount. Statistical News. Retrieved from <http://mongoltextile.mn/nav/97>

Mongolia`s Strategic Mineral Deposits. (2011). Info Mongolia. Retrieved from <http://www.infomongolia.com/ct/ci/1797>

Mónica Kjöllérström. (July 2007).Agro-based industries and growth: *prospects*

for *Sub-Saharan Africa*. Innovation Briefs, Issue 3. New York: Department of Economic and Social Affairs, United Nations.

Mungunbat Sharav. (2007). Industrial Development Planning by Local Government: *Cluster-Based Development Approach Policy Seminar*. Ministry of Industry and Trade of Mongolia. Retrieved from <http://www.adbi.org/files/2007.04.04.cpp.mongolia.country.report.pdf>

National Statistical Office of Mongolia. (2013). *Mongolian Statistical Yearbook 2012*. Ulaanbaatar: NSO

National Statistical Office of Mongolia. (2014). The number of livestock reaches record high. Retrieved from http://nso.mn/index.php?page=news_more&id=1166

National Statistical Office of Mongolia. (Dec 31, 2014). Number of livestock compared to 2013. Retrieved from <http://www.nso.mn/content/1046>

National Statistical Office of Mongolia. (Dec 31, 2014). Year-end livestock census. Retrieved from <http://www.nso.mn/content/1047>

Newcom Group. (n.d.). Sergelen Soum of Tuv Province is proud to home Mongolia's first windfarm. Retrieved from <http://www.newcom.mn/en/media/news/170>

N.Munkhuu, B.Tsetsgee, T.Narantuya.(n.d.).Development of innovation cluster in Mongolia for ICT sector: Role of High education system. Mongolian University of Science and Technology. Retrieved from http://csms.edu.mn/result/download1/papers/IFOST_1371629371.pdf

NUBIA. (2014). About the project to build new international airport of Ulaanbaatar. Retrieved from http://www.nubia.mn/?page_id=2811

OECD. (2010). Cluster Policies. OECD Innovation Policy Handbook. OECD Innovation Policy Platform

- Office of Mongolian President. (2013, January 30). Cluster is the main tool to increase competitiveness, implement innovation policy, and improve export potential, and lead to a rapid development. Retrieved from <http://www.president.mn/mongolian/node/3183>
- Orjan Solvell, Goran Lindqvist&Christian Ketel. (2003). The Cluster Initiative Greenbook. Stockholm: Bromma tryck AB
- Oyu Tolgoi. (n.d.). Retrieved from <http://www.riotinto.com/ourbusiness/oyu-tolgoi-4025.aspx>
- Paulius Kuncinas. (2014, March 4). Mongolia looks to Chinggis Bonds for Export Boost. Oxford Business Group. Retrieved from <http://ubpost.mongolnews.mn/?p=8179>
- Pearly Jacob. (2013). Herders caught between cashmere and climate change. UB Post, April 10, 2013. Retrieved from <http://ubpost.mongolnews.mn/?p=3571>
- Pearly Jacob. (2013).Mongolia: *Ulaanbaatar Wrestles with Dutch Disease Dilemma*. Eurasia Net. Retrieved from <http://www.eurasianet.org/node/67372>
- Philipp Ehrl. (December 2011). Agglomeration Economies with Consistent Productivity Estimates. BGPE Discussion Paper, No.113. Retrieved from http://www.lsw.wiso.uni-erlangen.de/BGPE/texte/DP/113_Ehrl.pdf
- Rafael Miranda Ayala. (n.d). Competitiveness analysis of the wine industry: *A case study of the Chilean case and as a role model for the Peruvian wine sector*. Academia Edu. Retrieved from http://www.academia.edu/1970613/Competitiveness_analysis_of_the_Chilean_wine_sector_as_a_role_model_for_the_Peruvian_case

- Reuters. (2013, July 19). Mongolia grants 1-year contract to mine Tavan Tolgoi west block. Reuters. Retrieved from <http://www.reuters.com/article/2013/07/19/mongolia-tavantolgoi-contract-idUSL4N0FP1JS20130719>
- Sabrina Azadi. (2010, January 17). Not all cashmere is created equal: *Bargains abound, but mid-priced sweaters sacrifice softness*. Chicago Tribune. Retrieved from http://articles.chicagotribune.com/2010-01-17/features/1001140333_1_cashmere-camel-hair-manufacturers-institute-mongolian-goat
- Seyed Vahid Moosavi&Mahdi Noorizadegan. (2009). Export Clusters. Chapter 8 from *R.Zanjirani Farahani et al., Supply Chain and Logistics in National, International and Governmental Environment*. Berlin: A Springer Company
- Svytlana Pyrkalo. (2013). Mongolia`s Cashmere Fashion Success: *EBRD helps Mongolia's cashmere industry grow at home and reach new markets abroad*. EBRD. Retrieved from <http://www.ebrd.com/pages/news/press/2013/130822.shtml>
- The World Factbook. Mongolia. CIA. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/mg.html>
- Theodore H.Moran. (July 2013). Avoiding the “Resource Curse” in Mongolia. Policy Brief, No.PB13-18.Peterson Institute for International Economics.
- Tom De Witt. (n.d.). Summary Brief: *A Case Analysis of Porter`s Cluster Theory in the Amish Furniture Industry*. Retrieved from <https://aa-mg6.mail.yahoo.com/neo/launch?.rand=8ikhaecmthaki#1728309149>
- Trade Environment Database. (n.d.). Globalization of the Cashmere Industry in Mongolia. TED Case Studies, American University. Retrieved from <http://www1.american.edu/TED/mongolia.htm#I3>

- Tuv aimag. (Apr 24, 2014) Basic information. Retrieved from [http://www.infomongolia.com/ct/ci/191/70/Tuv%20\(Tov\)%20Aimag](http://www.infomongolia.com/ct/ci/191/70/Tuv%20(Tov)%20Aimag)
- UNDP. (2013). Enterprise Mongolia Project- Phase 2.Final Report MON/09/203, pp.1-67. Retrieved from http://www.mn.undp.org/content/dam/mongolia/Publications/Poverty/Project%20Reports/Mongolia_Final%20Report_EMP-2_01072013.pdf
- U.S Embassy-Mongolia. (2013). 2013 Mongolia Investment Climate Statement, Economic and Commercial Section, U.S Embassy. Retrieved from http://photos.state.gov/libraries/mongolia/805999/PDFs/mics_2013.pdf
- U.S Library of Congress.(n.d.). Agriculture. U.S Library of Congress- Country Studies, Mongolia. Retrieved from <http://countrystudies.us/mongolia/53.htm>
- U.S Library of Congress.(n.d.). Socialist Framework of the Economy. U.S Library of Congress- Country Studies, Mongolia. Retrieved from <http://countrystudies.us/mongolia/51.htm>
- Vittoria Veronesi. (February 2011). Managing Exclusivity and Availability of Fashion Products: *A Supply Chain Perspective*. Universita Degli Studi di Bergamo. Retrieved from http://aisberg.unibg.it/bitstream/10446/912/1/Vittoria_Veronesi_PhD_Thesis.pdf
- Wines of Chile.(n.d.).Heritage and Modernity. Wines of Chile. Retrieved from <http://www.winesofchile.org/chilean-wine/chiles-wine-heritage/>
- Wines of Chile.(n.d.). Innovative Chile: *Nature does its part; we do ours*. Wines of Chile. Retrieved from <http://www.winesofchile.org/chilean-wine/innovation/>

Wines of Chile.(n.d.).Studies and Reports. Wines of Chile. Retrieved from <http://www.winesofchile.org/studies-reports/>

Wines of Chile.(n.d.).Viticultural Paradise. Wines of Chile. Retrieved from <http://www.winesofchile.org/chilean-wine/viticultural-paradise/>

World Bank. (2009). Clusters for Competitiveness: *A Practical Guide&Policy Implications for Developing Cluster Initiatives*. WB, International Trade Department

World Bank.(2012). FY2013-2017 Country Partnership Strategy for Mongolia for the period FY 2013-2017.World Bank Mongolia, Report No. 67567-MN.

World Bank. (2014, August 21). Enhancing Capacity to Diversify the Mongolian Economy. World Bank. Retrieved from file:///C:/Users/shutoums/Downloads/Enhancing_Capacity_to_Diversify_the_Mongolian_Economy.pdf

Yueh-Hua Lee, Hui-ChiungLo&Enkhgerel Enkhtuvshin.(July-December, 2010).A Study of Value Delivery System in Mongolian Cashmere Industry: From Brand Equity Perspective. International Journal of Reliability and Quality Performance, Vol.2, No.2, pp.107-118. Retrieved from http://tkuir.lib.tku.edu.tw:8080/dspace/bitstream/987654321/74909/2/6_Yueh-Hua%20Lee,%20Hui-Chiung%20Lo%20&%20Enkhgerel%20Enkhtuvshin.pdf

APPENDICES

Annex for Chapter 2

Clusters as a tool to diversify natural-resource rich economies

Many natural-resource-rich countries encounter difficulties in the general business environments. Since they have a big resource wealth, there are few incentives to obtain skills and people try hard to get government jobs. Due to its control over resource deposits, government gets into center of the economy, limiting openness to competition and becoming corruptive. Then, it gets worse as dominant business groups with strong political ties take over markets and restrict entry of foreign and other rivals. As results, cluster development lags behind, not being able to diversify their industry structure (C.H.M Ketels&O.Memedovic, 2008:p.12).

Many government initiatives are focused on physical infrastructure and real estate development. Clusters are confused with large investments in fixed assets, but they also need effort in soft assets especially modern logistics, knowledge development, entrepreneurship and branding. Second, where a specific industry focus exists, it is not always clear what specific value the cluster-specific business environment will provide. Third, there are insufficiently coordinated cluster initiatives by different agencies. Fourth, there is a weak understanding of the roles of the private and public sectors in a cluster.

Any strategy to diversify the economy through cluster has to start by assessing country's business environment, in its present clusters and in the current profile of cluster-oriented policies. Only then it can evolve further (C.H.M Ketels&O.Memedovic, 2008:p.13).

Theory of Competitive Advantage of Nations

The traditional view of competitiveness looks at factor prices- relative wages, capital costs, and the prices of other inputs- as the main determinant of industrial competitiveness. Many see national competitiveness as macroeconomic phenomenon, driven by variables like exchange rates, interest rates, and government deficits, whereas others say that competitiveness is a function of cheap and abundant labor. Even, some stress out bountiful natural resources or other natural endowments (Michael Porter, 1990: p.6). Basically, traditional

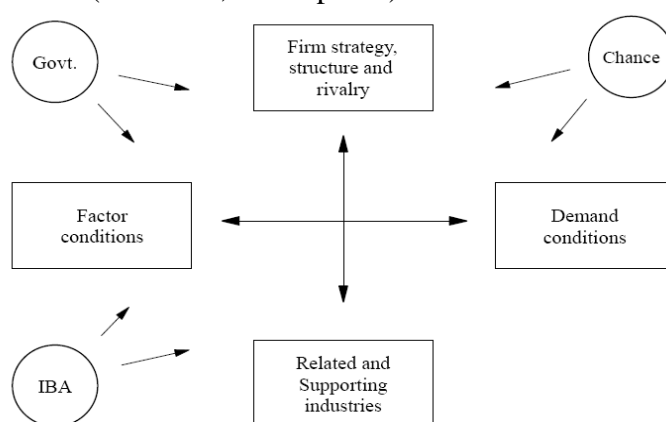
aspect of competitiveness thinks that it is inherited. Recently, the argument has gained favor that competitiveness is stimulated by government policy (Michael Porter, 1990:p.6). However, protective policies and subsidies can drag competitiveness down in the long run as firms and further those nations will have fewer incentives to adapt to changes in volatile market conditions.

Although some of them could be partially true, the only meaningful concept of competitiveness at the national level is *productivity*. The main goal of a nation is to produce a high living standard, adjusted for purchasing power parity, for its citizen. The ability to do so depends on the productivity with which a nation's labor, capital, and physical resources are employed. Nation's standard of living depends on the capacity of its firms and companies to achieve high levels of productivity and to increase productivity over time. Sustained productivity growth requires that an economy continually upgrade itself and companies improve productivity in existing industries by raising product quality, adding desirable features, improving product technology, or boosting production efficiency. They must develop necessary capabilities to compete in more sophisticated and new industry segments, where productivity is generally high (Michael Porter, 1990: p.6). In short, companies in a nation should engage in relentless innovation to increase their productivity and further raise the country's competitiveness. Thus, productivity defines competitiveness.

Classical theory explains the success of nations in particular industries based on factors of production. Nations gain factor-based comparative advantage in industries that make intensive use of the factors they possess in abundance. However, classical theory has been overshadowed in advanced industries and economies by the globalization of competition and the power of technology. So, new theory of competitive advantage must move beyond comparative advantage and reflect a rich conception of competition that includes segmented markets, differentiated products, technology differences, and economies of scale (Michael Porter, 1990: p.7). Then, this competitive advantage of nations lies in how firms in a nation are being more productive in certain products and industry segments. And, point to raise this productivity leading to higher competitiveness is in clusters.

Diamond Model

To explain national competitive advantage, Porter (1990) created a new theory, which he calls Diamond Model or National Diamond. He wanted to find out why some countries are more successful in particular industries than others. The answer is four classifications of country attributes that provide the underlying conditions or platform for competitive advantage of nations. Those attributes are factor conditions, demand conditions, related and support industries, and company strategy, structure, and rivalry. Porter also proposed three other factors namely government policy, chance, and international business activity (IBA) as exogenous factors that support and complement the system of national competitiveness (A.J. Smit, 2010: p.115).



1. **Factor Conditions:** Whereas the traditional trade theories define factor conditions as land, labor and capital, Porter distinguishes between the following categories: human resources, physical resources, knowledge resources, capital resources and infrastructure. Factor conditions are further subdivided into basic and advanced factors that can be either general or specialized. Basic factors such as unskilled labor, raw materials, climatic conditions and water resources are inherited and require little or no new investment to be utilized in the production process. Advanced factors are created and upgraded through reinvestment and innovation to specialized factors, which according to Porter form the basis for the sustainable competitive advantage of a country. Furthermore, he classified factor conditions into generalized factors such as transport and communications system, banking system, and educated and motivated labor and specialized factors that include high skilled labor and special infrastructure (A.J Smit, 2010: p.11). Basically, according to Porter, advanced, specialized, and created

factors provide more sustainable and competitive advantages than basic, generalized or inherited ones.

2. Demand Conditions: Porter focuses more on demand differences than on similarities to explain the international competitiveness of countries. According to him, it is not only the size of the home demand, but also the sophistication of home country buyers matters. It is the composition of home demand that shapes how firms perceive, interpret and respond to buyers' needs. This forces home country firms to continually innovate and upgrade their competitive positions to meet the high standards in terms of product quality, features and service demands (A.J Smit, 2010: p.12).
3. Related and Support Industries: Internationally competitive home-based suppliers create advantages in downstream industries in several ways. First, they deliver the most cost-effective inputs in an efficient, early, and rapid way (Michael Porter, 1990: p.12). Also, home-based related and supporting industries provide in upgrading and innovation-an advantage based on close working relationships. Suppliers and end-users mostly located together in a cluster can take advantage of short lines of communication, quick and constant flow of information, and an ongoing exchange of ideas and innovations (Michael Porter, 1990: p.13).
4. Firm Strategy, Structure, and Rivalry: According to Porter, the strategies and structures of firms depend heavily on the national environment and that there are systematic differences in the business sectors in different countries that determine the way in which firms compete in each country. Porter identifies rivalry as the most critical driver of competitive advantage of a country's firms. He believes that domestic rivalry forces firms to be cost competitive, to improve quality and to be innovative (A.J Smit, 2010: p.13).
5. The role of government: The government should act as a catalyst since it can't establish competitive industries; only companies can do it. Government policies are for creating an environment, in which companies can gain competitive advantage rather than direct role in the process. For example, it should take part in creating specialized factors, avoid intervening in factor and currency markets, enforce strict product, safety, and environmental standards, promote goals that lead to sustained investment, deregulate competition, enforce strong domestic antitrust policies, and reject managed trade (Michael E.Porter, 2000: pp.17-19).

All these components should work together; so that nations could become more competitive. Nations succeed in industries or clusters if their national circumstances or diamond parts provide an environment that supports this sort of behavior. At its best the components of a diamond form a cluster where each part strengthens each other. Cluster is the manifestation of the diamond at work because proximity, arising from co-location of companies, customers, suppliers, and other institutions, amplifies all of the pressures to innovate and upgrade (Michael Porter, 2000: p.8).

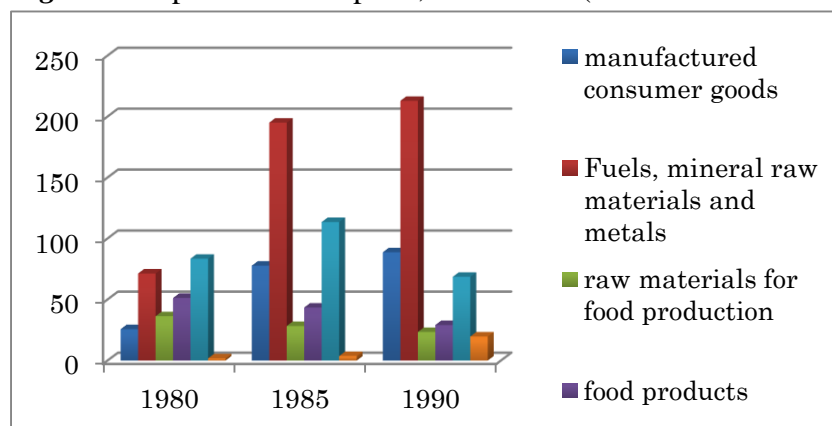
Brief History of Mining Industry of Mongolia

Mining industry has its origins from 1922. With the People's Government Resolution of February 10, 1922, a coal deposit in Nalaikh city was taken under state control and exploitation duration was set to be finished by December 25, 1922 hence started the development of Mongolian Mining Industry (Mining Mongolia- 90 years, 2012).

During these years with development of Mining Industry, there was a special occasion which brought countless advantages to Mongolia. In 1978, in the framework of the agreement between the governments of Mongolia and Soviet Union, Erdenet Mining Corporation was established. Currently, EMC, processing 26 million tons of ore per year and producing around 530.0 thousand tons of copper concentrate and around 4.5 thousand tons of molybdenum concentrates per year, is one of the biggest Ore Mining and Ore Processing factory in the world (Erdenet Mining Corporation, Introduction, n.d.). In addition, in accordance with the development of "Erdenet" factory, a whole new city, whose half of the population were Russians, was built and named "Erdenet" city.

After the collapse of Soviet Union, ODA to Mongolia was terminated, and the country fell in depression. During these harsh years, the mining industry was one of the factors which were the hope of Mongolian survival when other sectors were breaking down. In 1990, fuels, mineral raw materials and metals were main export products and they accounted almost half of total exports.

Figure Composition of Exports, 1980-1990 (in million transferable rubles)



In the beginning of 2000s, when Mongolia's economic situation was getting steady there was an exclusive discovery of Oyu Tolgoi Mine, which is one of the largest copper-gold mines in the world. The discovery immediately grabbed international attention into Mongolia.

Previous experience of Mongolia on cluster-like development

In Mongolia, until today, we haven't had any classic or real cluster development like that of developed countries, but during the socialist times of centrally-planned economy, the state had established and strengthened agricultural collectives (*negdel* in Mongolian language) and exported livestock-based materials and final goods to the Soviet Union. For instance, hide and leather collective, cashmere and wool collective, and sewing factories` or garment collective were established in 1972 (ILIRD, 2012: p.126). We could consider them as close to cluster because collectives were comprised of manufacturing complexes that deeply processed raw materials at each value chain and produced final goods, exporting some of them (ILIRD, 2012:p.123).

State-led economic growth of Mongolia was carried out through five-year plans during socialist times. Then, the objectives of the first five-year plan (1948-1952) were to strengthen collectives and hence improve people`s well-being. After 1958, 99.7% of the total animal farmers had joined the collectives (History of Mongolia, 2012). In ten years, agricultural cooperatives had grown from 139 in 1950 to 354 by 1960, and they possessed 73.8% of livestock and employed 60.8% of total work force. After 1960, inter-agricultural cooperative associations were organized to facilitate collective`s specialization and cooperation, and collective activity increased with large-scale agricultural assistance from the Soviet Union and other East European countries. In 1967, the Union of Agricultural Associations was established to supervise collectives and to represent their interests to the government and to other cooperative and social organizations. Unlike nomadic tradition, the households that made up collectives lived in permanent settlements. In 1985, the average *negdel* whose number reached 255 had 61,500 heads of livestock and 438,500 hectares of land.

Along with cooperatives, the government had state farms which had more capital invested, were more highly mechanized, and generally were located

in the most productive regions, or close to major mining and industrial complexes. State farms engaged in crop production, each farm employing about 500 workers (Country Data-Mongolia, 1989). In the late 1980s, state farms were developed to have agro-industrial complexes that process foodstuffs. For example, the Shariin Gol state farm grew fruits and vegetables, which then were processed in the state farm's factories to produce dried fruit, fruit juices, fruit and vegetable preserves, and pickled vegetables. In the late 1980s, animal husbandry based on agro-industrial complexes or state farms continued to be an important component of the national economy, supplying foodstuffs and raw materials for domestic consumption, for processing by industry, and for export. In 1986 exports of livestock products included 15,500 tons of cashmere, 121,000 large hides, 1,256,000 small hides, and 44,100 tons of meat and meat products, the amount of which is far higher than current exports (Country Data-Mongolia, 1989), and agriculture supplied nearly 60 percent of Mongolia's exports.

At that time, they even engaged in small-scale innovation activity at their disposal to raise productivity by improving mechanization and breeding techniques to boost meat, milk, and cashmere yields, cutting losses from barrenness and miscarriages, and strengthening veterinary services to reduce illness. And, additional livestock facilities were to be built to provide shelter from harsh winter weather and to fatten livestock. Furthermore, more efficient use of fodder was sought through expanding production; improving varieties; and decreasing losses in procurement, shipping, processing, and storage (U.S Library of Congress, Country Studies).

Second example close to cluster in Mongolia is EMC and Erdenet city developed along with the complex. The copper and molybdenum deposit at Erdenetiin-ovoo was discovered by Mongolian and Czechoslovak geologists in the mid-1960s and was developed with Soviet assistance in the 1970s. Erdenet's development required the construction of a branch railroad line; a highway; a water pipeline; an electric line from the Soviet Union; and factories, housing, and other facilities. A Mongolian-Soviet construction force numbering 14,000 built the Joint Mongolian-Soviet Erdenet Mining and Concentrating Combine, which included a mine, a concentrating plant, a material and technical supply base, a mechanical repair plant, and a high-capacity thermal and electric power plant (U.S Library of Congress, Country Studies). It can be considered as a moderate cluster

because starting from extracting, washing, smelting, and so on, the complex produces final product like copper cathode; and various related, supporting industries and whole city were developed to sustain the value chain of this complex. Copper from this deposit makes up the copper export of Mongolia and makes up almost 15% of Mongolia's GDP and budget revenue through tax payment etc.

The third de facto cluster case in Mongolia is in the late 1980s, the government divided the country into three economic regions to develop the country based on their specializations. The western region, with 21% of the nation's population, was predominantly agricultural. It had 32% of Mongolia's livestock and produced about 30% of its cashmere, wool, and meat. Local industry was engaged in processing of animal husbandry products, timber, and building materials. Transportation was predominantly by motor vehicles. The central economic region was the dominant producer. The region had 70% of Mongolia's population and 55% of its territory. This region accounted for 80% of gross industrial production, 90% of light industrial production, and 80% of food industry production, 75% of coal production, and 100% of copper-molybdenum, iron ore, and phosphate mining. It also accounted for 60% of gross agricultural production, 60% of milk production, 50% of meat production, and 80% of grain, potato, and vegetable production. And, the eastern economic region had 9% of Mongolia's population, 20% of the arable land, and 15% of the livestock. The region contributed 15% of gross meat production and 13% of wool production. Grain production on large state farms hewed out of virgin lands contributed 90% of the region's agricultural output (U.S Library of Congress, Country Studies).

Although some factors of above examples look similar to cluster, they couldn't diversify Mongolian economy and bring substantial benefit. Because, the country was lack of technology and innovation and had less capacity at that time. Some value-added cheap products were exported to only former Soviet Republics, whose people had relatively weak purchasing capacity, so Mongolia couldn't get reasonable profit from its export. Also, due to lack of technology and skills, the design and quality of the products weren't competitive. In addition, supporting and related industries weren't common and had low level of development. In the end, all relevant entities operated separately.

All these developments slowed down and finally collapsed since Mongolia transformed into democracy and all socialist establishments based on centrally-planned economy got shattered. But, the experience of running somehow productive collectives could help in establishing clusters in the future.

Annex for Chapter 4
Interview Questions

Division of Development Economics, International Cooperation Policy
Graduate School of Asia Pacific Studies
RITSUMEIKAN ASIA PACIFIC UNIVERSITY, Japan

Dear Interviewee,

I am doing research on “Exploring the Possibility of Utilizing Cluster Approach to Diversify mining-based Economy of Mongolia” and hence conducting this interview. Your assistance in participating in the interview and answering the questions will help to achieve the objectives of the study. I assure that whatever information is supplied by you through these questions will be strictly confidential and used for the research purpose only.

Sincerely,

Sanduijav Tserendolgor

I would like to hear your opinion on current development pattern of Mongolia and possibility and viability of cluster approach in diversifying the economy.

Please answer the following few questions as good as you can.

1. How do you frame the current economic situation of Mongolia?
2. Do you think economic growth from mining boom could lead to long-term development of Mongolia?
3. What do you think of economic diversification? Or is it better just to wisely manage mineral resources and make more emphasis on mining sector?
4. What are the most potential sectors for Mongolia to diversify the economy?
5. Have you heard of the term “cluster”?
6. How do you see the possibility of utilizing cluster to diversify the economy?
7. Is cluster approach suitable and appropriate in Mongolia?
8. How do you see the challenges for developing clusters in Mongolia?
9. What should Mongolia focus on and do as the basis of cluster development?
10. Which part of Mongolia could be recommended as a better location to establish cluster?
11. Please share your ideas on how to improve sustainability of Mongolian economic development.

Thank you for your kind participation in this interview.
Your opinion and answer will be valuable for this research.